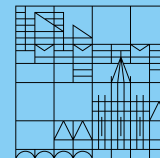


Zukunftskolleg Annual Report 2019 | 2020

Universität
Konstanz

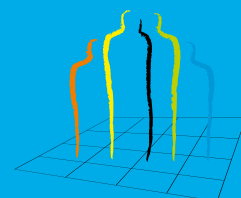


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Zukunftskolleg



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Giovanni Galizia
Director of the Zukunftskolleg

Dear readers,

The Zukunftskolleg has always identified as a large experimental laboratory where measures are tested and – if they have proved themselves – transferred to the university as a whole. An example is our very successful Transdepartmental Collaborative Teaching programme, which fosters the development of new teaching formats at the University of Konstanz and served as inspiration for the Teaching Innovation Fund – a key measure in the e-science strategy. It is not without reason that we are regarded as a flagship project within the Excellence Strategy.

The coronavirus pandemic that suddenly broke over all of us in March 2020 has stimulated our delight in experimentation more powerfully than ever: While various digitalization concepts were still being discussed last year in the framework of our application within the Excellence Strategy, we were called on more or less overnight to get a digital semester up and running. But here too we have seen how adventurous, flexible and motivated all members of the Zukunftskolleg were in their reaction to the situation, holding their scientific lectures, the Jour fixe, etc., using digital formats.

As is well known, effort is rewarded, which is why we wanted to support those of our fellows who had to endure severe restrictions to their research work as a result of the pandemic: In July, we published an internal call for applications for the extension of fellowships to ensure that Postdoctoral and Research Fellows whose research projects have been negatively impacted by COVID-19 are subsidized through contract extensions – subject to budgetary capacity and taking into account the legal regulations.

Despite all the restrictions through the pandemic, our fellows have achieved great things over the past year. What exactly is described by each fellow on a double page (p. 8 onwards) – together with the Visual Abstracts from the last annual report, which were so well received that we have included the graphics again and continued the series with our new fellows. In addition, we wanted our fellows to tell us how the pandemic has influenced their respective discipline and what impacts can probably be expected in ten years' time.

That a lot can happen in ten years is also demonstrated by the interview with chemist Thomas Böttcher (p. 4–7): After ten successful years as postdoc, he has accepted a professorship for microbial biochemistry at the University of Vienna. We spoke with him about his experiences at the Zukunftskolleg, his advice for the German university landscape and his plans for Vienna.

In this sense, I recommend that you plan some time to read about the many different experiences and projects at the Zukunftskolleg.

I wish you pleasant reading!

Yours sincerely
Giovanni Galizia

A handwritten signature in black ink, appearing to read 'G. Galizia', written in a cursive style.

“Reaching the top of Mount Everest”



Thomas Böttcher has been a Research Fellow at the Zukunftscolleg and junior research group leader at the Department of Chemistry of the University of Konstanz since 2014. In October 2020 he was appointed as Professor for Microbial Biochemistry at the University of Vienna. We spoke with him about his experiences in Konstanz, his advice for the German university landscape and his plans for Vienna.

WHAT CHANGES DOES THE GERMAN UNIVERSITY LANDSCAPE NEED TODAY IN ORDER TO RETAIN THE BEST YOUNG MINDS IN SCIENCE AND RESEARCH?

In my opinion, there are various approaches. I'll list the most important ones here:

1) Universities require correspondingly sound university funding that allows them more flexibility and gives them the financial freedom to make competitive retention offers. Especially professors appointed for the first time often receive less competitive financial and personnel resources.

2) The equipping of universities in Germany with positions funded through the university budget and permanent positions needs to be significantly improved. In my view, the enormous dependence on external funding at German universities is an obstacle to their expedient long-term orientation and the sustainability of research. At the same time, a larger number of non-professorial positions need to be created, which would be important not only for the continuity of the research work in the research groups or the maintenance of Core Facilities but could also offer career options in academia beyond a professorship.

3) The German university landscape requires an open tenure track system that is consistent with the plurality of the qualification pathways to a professorship.

WHICH NEW PARAMETERS OUGHT TO BE ESTABLISHED AT THE UNIVERSITY OF KONSTANZ IN ORDER TO ADVANCE YOUNG RESEARCHERS' CAREERS?

I think it's especially important to trust young researchers, give them freedom and meet them at eye level. This already works very well at the University of Konstanz, but there still seems to be considerable differences between departments. Standardizing best practice would be desirable.

Establishing – in a suitable form – the open tenure model in Konstanz that I mentioned before would naturally play a really pioneering role. I think that not only the best early career researchers would profit from this in the long run but also the University of Konstanz.

THE UNIVERSITY OF KONSTANZ HAS THE ZUKUNFTSKOLLEG. DOES THIS LEAD TO TWO CLASSES OF EARLY CAREER RESEARCHERS? IS THAT A GOOD THING?

Funds are never distributed evenly in science, that's naturally also the case at the Zukunftscolleg.

I think it's right that in a competitive environment attractive funds are made available for the best projects and minds. As I'll explain later on, it would, however, be desirable if the Zukunftscolleg would open up more within the university towards independent early career researchers.

YOU APPLIED AROUND SEVEN YEARS AGO FOR A RESEARCH FELLOWSHIP AT THE ZUKUNFTSKOLLEG. HOW DID YOU FIND OUT ABOUT IT AND WHAT ATTRACTED YOU TO THE ZUKUNFTSKOLLEG?

I had the choice of four universities at that time, which I had looked at more closely as a host institution for my Emmy Noether application. An important criterion for me was which additional options were in place to support early career researchers at the respective universities. After all, if my main application had failed, I would have needed alternatives. With the Zukunftscolleg, the University of Konstanz offered me the best conditions for setting up a junior research group. Apart from financial support, what particularly attracted me was the opportunity for interdisciplinary exchange and networking with other early career researchers.

WHAT RESEARCH PROJECTS DID YOU WORK ON DURING YOUR FELLOWSHIP AT THE ZUKUNFTSKOLLEG?

Our research aims to decipher the chemistry of microbial interactions and to develop substances with which the behaviour and virulence of bacterial pathogens can be controlled in a targeted way. We've conducted a large number of exciting projects on this topic in my working group over the last years. Among others, we were able to develop new, highly specific antibiotics that only inhibit the growth of pathogenic bacteria and do not compromise benign microbes. By studying microbial metabolites, we've been able to gain a better understanding of the interactions of bacteria that lead to

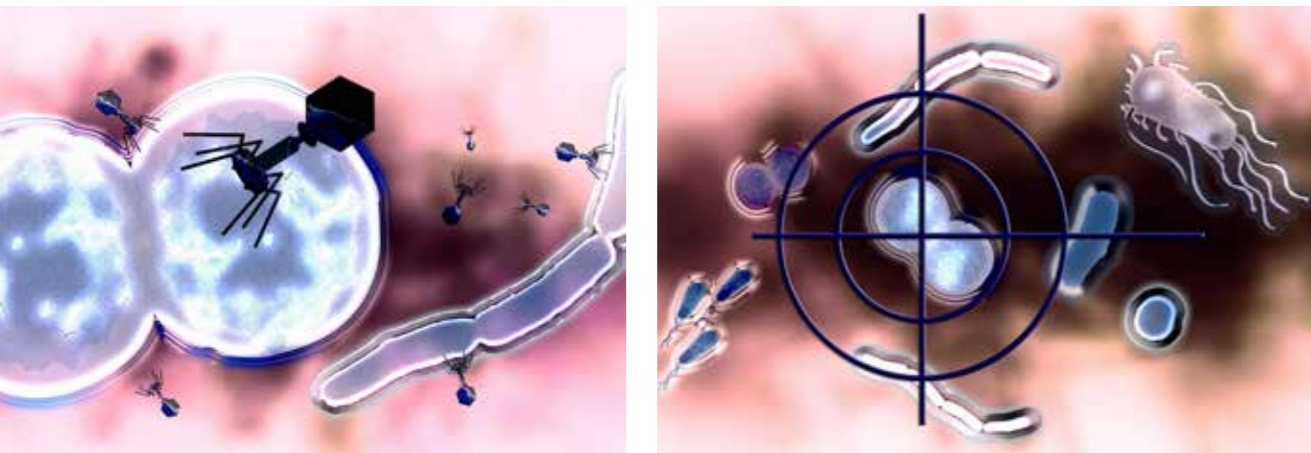
infections in patients with cystic fibrosis. In addition, we were able to develop new methods which make it possible to disarm pathogens in a targeted way and thus render them harmless. We now want to build further on these results and assemble a comprehensive chemical toolbox, which should facilitate precision interventions in the human microbiome.

HOW HAS THE ZUKUNFTSKOLLEG CONTRIBUTED TO YOUR CAREER?

The Zukunftscolleg has given me the freedom to pursue a lot of exciting ideas. To try out whether a new project idea is viable, you need funding for exploratory studies. However, the programmes of national and international sponsors generally don't support these. The uncomplicated procedure when applying for funding at the Zukunftscolleg through the Co-Funding Programme allowed me to react flexibly to new developments and dare to take the first steps in new directions in my research. This made a significant contribution to the productivity of our research and the development of our research profile.

THE ZUKUNFTSKOLLEG EXPECTS ITS FELLOWS TO SHOW AN INTERDISCIPLINARY INTEREST AND TO TAKE PART IN THE JOUR FIXE. DOES THIS NOT BEAR THE RISK OF FRAGMENTATION AND TAKE IMPORTANT TIME AWAY FROM FELLOWS' OWN RESEARCH?

For me, the Jour fixe is the social centrepiece of the Zukunftscolleg. Here, the early career researchers meet up and can exchange thoughts and ideas as well as network. The time needed for participating in the Jour fixe is manageable. What I find particularly enriching about the Jour fixe is that you broaden your horizons and learn to understand the cultures of other disciplines. I find exchanging thoughts and ideas across the boundaries of individual disciplines very stimulating. Even if the



connections with your own research tend to be rare, insights into unfamiliar domains sharpen your own thinking and spark creativity. I consider personal conversations on the fringe of these meetings to be particularly important because they offer an opportunity to talk to each other about the experiences and challenges of an independent academic career.

WHAT COULD BE CHANGED AT THE ZUKUNFTSKOLLEG TO MAKE IT EVEN MORE ATTRACTIVE?

For me, it's paramount that the Zukunftskolleg focuses on young researchers who are directly in the process of qualifying for a tenured professorship. In my view, this should be the most important target group because they have hardly any other possibilities to exchange views and ideas nor are their interests represented. The step to an independent academic career poses a lot of challenges and offers many opportunities that need to be recognized and harnessed. A community at the same stage in their careers can mutually support each other and make optimal use of synergies. I would therefore suggest integrating all the independent early career researchers who come under the Konstanz Code of Practice into the Zukunftskolleg. This does not have to mean that everyone is given the same resources or the same fellowship status (see too my point above on the plurality of qualification pathways to a professorship). First approaches for such integration already exist. Early career researchers from the whole university are already eligible to submit applications for many tenders issued by the Zukunftskolleg. So why not let everybody take part and build up a strong community?

At this point, I would like to highlight another

advantage of the Zukunftskolleg: The central visibility of the funding opportunities and support measures that the University of Konstanz has to offer for early career researchers. For example, I have the impression that above all my colleagues at the Zukunftskolleg make successful use of the individual mentorship and coaching programmes in place to support them on their way to a professorship.

Furthermore, I consider the Zukunftskolleg's long-term institutionalization and a sound financial base to be deciding factors in order not to have to ride solely on the waves of temporary funding.

WAS THE FINANCIAL SUPPORT FROM THE ZUKUNFTSKOLLEG HELPFUL AND SUFFICIENT? WHAT TYPES OF FUNDING INSTRUMENTS DID YOU USE?

Building up an independent research group and developing your own autonomous research profile in biological chemistry requires considerable financial resources. Flexible funding and a fast, uncomplicated application procedure are pivotal to being able to pursue innovative research ideas and launch exploratory studies. The funding opportunities provided by the Zukunftskolleg were therefore even one of the main reasons why I decided to come to Konstanz.

During my time at the Zukunftskolleg, I profited above all from co-funding and the Investment Programme as well as support for an interdisciplinary collaboration project and for Transdepartmental Collaborative Teaching. In this way, the funding instruments of the Zukunftskolleg have both enriched my research profile and helped to enhance my teaching profile.

WOULD YOU RECOMMEND JOINING THE ZUKUNFTSKOLLEG? IF YES, WHY, AND IF NO, WHY NOT?

A resounding YES. The Zukunftskolleg quite simply offers early career researchers fantastic conditions for their further development.

TO WHAT EXTENT HAVE YOU PROFITED FROM THE EQUAL OPPORTUNITY MEASURES OF THE UNIVERSITY/THE ZUKUNFTSKOLLEG (E.G. DUAL CAREER, KINDERHAUS CHILDCARE CENTRE)?

My partner (who is also a Zukunftskolleg Fellow) and I have both profited from the equal opportunity measures and from the support of the Zukunftskolleg. With the birth of our daughter in 2016, the Kinderhaus childcare centre was very important for us, and we're highly satisfied with the possibilities and quality of the childcare there.

WHAT PRIZES IN THE LAST YEARS MEANT THE MOST TO YOU?

In 2015, I was elected as a member of Die Junge Akademie at the Berlin-Brandenburg Academy of Sciences and Humanities and the German National Academy of Sciences Leopoldina. That opened up a lot of possibilities for me personally – especially also beyond my own research interests. Another special honour for me was the award of the Manfred Fuchs Prize of the Heidelberg Academy of Sciences and Humanities in 2019. The ERC Consolidator Grant that followed now feels for me personally to a certain degree like reaching the top of Mount Everest and will have a decisive impact on our further research in the next years.

THE PAST YEAR HAS BEEN MARKED BY THE CORONAVIRUS PANDEMIC, WHICH ALSO INFLUENCED YOUR RESEARCH. TO WHAT EXTENT?

Shortly before the pandemic reached Germany, we had already begun to apply the existing methods we use to search for enzyme inhibitors of the proteases of the novel coronavirus. Fortunately, we had the possibility to continue this research with a small part of the team while the university was closed. This posed many challenges, of course, such as how to keep a laboratory up and running when almost

the entire infrastructure is paralyzed. In the end, we were able to validate a new technique with which to search for chemical probes that make it possible to find inhibitors against enzymes essential for the replication of the coronavirus. Here, we were also able to put forward concrete suggestions for active molecules that could be used as agents against the coronavirus. Our best candidate is currently being evaluated against the virus in a cell model.

WHAT PLANS DO YOU HAVE FOR VIENNA, BOTH AS A SCIENTIST AND PRIVATELY?

Our research is highly interdisciplinary and involves the fields of chemistry and microbiology. In October 2020, I joined the University of Vienna as Professor for Microbial Biochemistry, a position that bridges the Faculty of Chemistry and the Centre for Microbiology and Environmental Systems Science. In addition, the University of Vienna has built up an excellent infrastructure in the life sciences over the past years that fits perfectly with our research interests. It is also very well equipped, and that makes the overall package very attractive. Research into the human microbiome is currently a hot topic and also a specialization at the University of Vienna. I'm already looking forward to exciting research collaborations and hope to be able to add new elements to our understanding of chemical interactions in the human microbiome.

What's more, Vienna is a very beautiful city with a high quality of life. Nonetheless, changing location is a challenge because of the dual career situation in our family. But I'm looking forward to hopefully being able to feel at home soon with my family in Vienna.

The interview was conducted by Sigrid Elmer.

Read the complete interview on the Zukunftskolleg website:



Fellow Reports

Each fellow report consists of three parts: A success story from the 2019/2020 academic year, the fellow's opinion on how the coronavirus pandemic might influence the respective discipline and on the right-hand page a Visual Abstract about the fellow's research project.



Carolin Antos-Kuby

Research Fellow since 07/2016
Department of Philosophy

Universe or multiverse?

In a standard approach, set theory is considered to provide a foundation for mathematics. This means that theoretically all of mathematics can be formulated in the language of set theory and carried out as operations on sets. But what are the foundations of set theory?

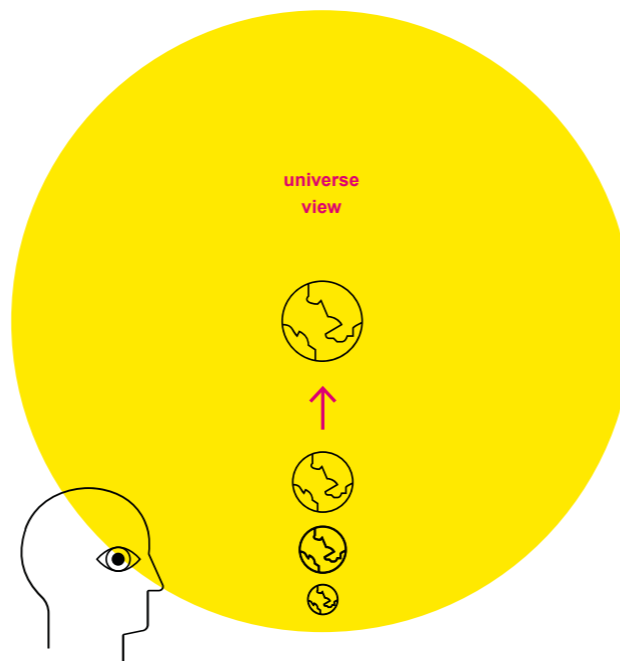
We study set theory in mathematical models, the models of set theory. One view, often called the universe view, states that there is one “correct” model of set theory that comes as close as possible to what set theory is really like. In the last decades, an alternative view was developed, known as the multiverse view. This view holds that set theory cannot be captured by one model alone, but that there are many independent models which are all correct representations of what set theory is.

In my recent work, I deliver arguments for a multiverse picture by using the naturalistic approach of P. Maddy. This type of naturalism focuses on analyzing scientific practice and taking this to inform our philosophical considerations. Starting from the way in which set theorists work mathematically with models of set theory, I argue that multiversism provides a better picture of this practice than universism.

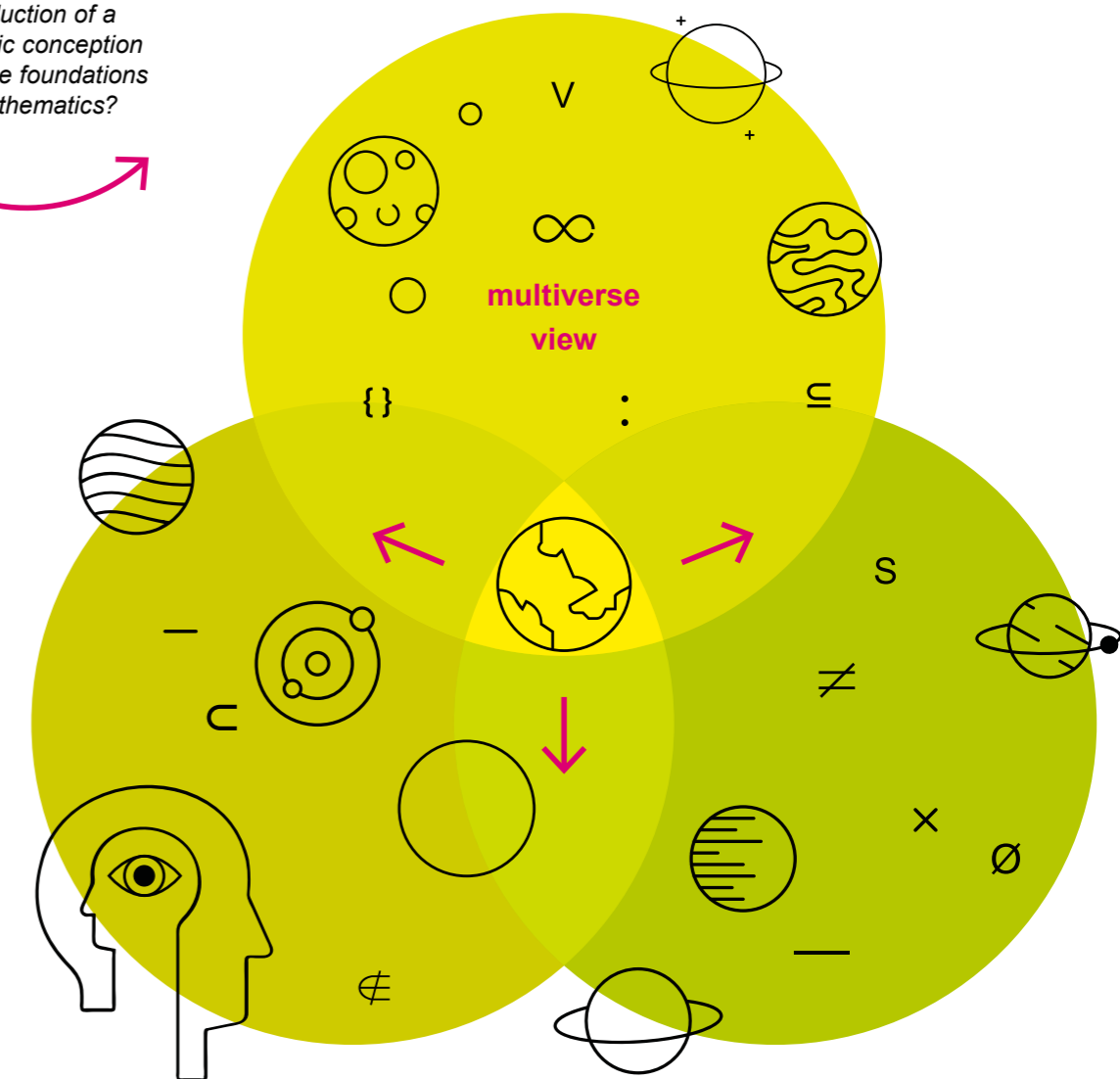
MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

In my subject area (theoretical philosophy), the coronavirus crisis impacted on researchers very differently. In one important instance, it widened the gulf between researchers with care responsibilities (in my case childcare) and researchers without such additional tasks. There are data available which reveal that submissions to journals have risen significantly by male authors, who are usually less affected by care duties, while at the same time submissions by women have dropped significantly. One of the first journals which made such data available, the British Journal for Philosophy of Science, is very close to my field of research.

If the situation continues like this, we will see some groups that are already rather disadvantaged drop out of academia at a much higher rate than before the coronavirus crisis. This is, of course, not only connected to care responsibilities but also holds, for example, for people from minorities, a precarious financial background, etc. In particular, this will influence the next generation of researchers who are now in the process of competing for permanent positions. As these positions will then be for life (at least in Germany), an imbalance in filling these positions will have an impact on the academic landscape for a long time.



introduction of a pluralistic conception inside the foundations of mathematics?



Conceptual change in the foundations of mathematics

In mathematics, the truth of a statement seems to be clearly decidable: Every statement that can be proven is true; every statement that can be disproven is false.

However, this is not correct. There is a large class of mathematical statements that are undecidable, i.e. they cannot be shown to be true or false via means of proving or disproving them. These statements are studied in set theory and, over the last 50 years, different kinds of mathematics have been developed in which different kinds of undecidable statements hold or fail.

In a philosophical reflection on this mathematical development, we study how much of a conceptual change this signifies and whether the development introduces a pluralistic conception of the foundations of mathematics.

Gruia Badescu

Research Fellow since 07/2020
Department of History and Sociology

Urban imaginaries

I started as a Research Fellow at the Zukunftskolleg in July. I am currently also an Alexander von Humboldt fellow, working on urban cosmopolitanism and on spatial practices to include different voices and diverse memory threads in European cities. My project at Zukunftskolleg takes this research further and focuses on how urban imaginaries – the way that urban actors understand what a city is – are reconfigured after historical ruptures. First, I will analyze the shaping of urban imaginaries, including cosmopolitanism and modernity. Second, I will investigate how ruptures such as war or change of political regime, impact urban imaginaries. Finally, I will examine the influence of urban imaginaries on the design of cities, as well as on how their social worlds function. I will build a research team which will investigate urban trajectories using different media, to connect a set of geographies in the 19th and 20th centuries.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

The coronavirus pandemic has attracted considerable interest both in history and urban studies. In history, studies of pandemics such as the Spanish flu have been rather popularized lately. Urban studies have highlighted discussions on cities and disease, rethinking perspectives on densification, as well as new relationships between public and private space. The pandemic also meant challenges for studying cities “live” as well as accessing historical archives, which slowed down research in these fields. Nevertheless, the discussions on rethinking cities as well as solidarity in sharing materials has shown continuities and promise in the two scholarly communities.



spatial-architectural, economic and political processes



war and transition from dictatorship



CITY CHANGES

POST-IMPERIAL CITIES
Sarajevo, Rijeka and Thessaloniki

THE AFTERLIVES OF THREE PARISES
Beirut, Bucharest and Buenos Aires



Bucharest



Beirut



Buenos Aires

Cities after historical ruptures

How do historical ruptures change the way cities are – their image – and the way they are understood – their urban imaginaries? This project investigates how urban images and imaginaries are shaped and reconfigured after ruptures such as end of empire, aftermath of war or transition from dictatorship. It examines how urban imaginaries relate to the making of cities in spatial-architectural terms, but also to economic and political processes. The project focuses on the historical experiences of cities that identify with two particular urban imaginaries, related to understandings of cosmopolitanism and modernity. First, it examines post-imperial cities in Europe such as Sarajevo, Rijeka and Thessaloniki, where the dominant imaginary is one of being cosmopolitan places of diversity, but which have in fact experienced different forms of conflict, population change and exclusions. Second, it discusses how a particular form of urban modernity, the imaginary of Paris, which Harvey (2004) deemed the “capital of the nineteenth century”, was embraced by three cities in different geographical contexts – a “Paris of the Middle East” (Beirut), “Paris of the Balkans” (Bucharest), and “Paris of Latin America” (Buenos Aires) – and how this imaginary morphed during war, dictatorship and neoliberal transitions.

Ariane Bertogg

Postdoctoral Fellow since 04/2020
Department of History and Sociology



Reconciling employment and family care in the second half of life

Demographic ageing poses a number of challenges for both welfare states and individuals. First, rising life expectancy comes at the cost of multimorbidity and an increased care need at the end of life. With their budgets under pressure, welfare states have to rely on informal caregivers – often themselves already over 50 years of age. Second, the restructuring of pension systems has prolonged working lives and raised older women's labour market participation. Third, postponed fertility has delayed grandparenthood. Hence, the extension of working lives and the care requirements of various generations within the family are increasingly falling into the same lifespan.

My new research at the Zukunftskolleg investigates the strategies which individuals apply to cope with these new reconciliation issues. Linking several strands of theory and research, I argue that there is a need for stronger contextualization of these decisions. I propose three areas of contextual influence, which I am going to investigate both separately as well as in combination. These three areas include: A) the life course of the individual, B) the

embedding into a larger family network, and C) the societal context with regard to policies and cultural norms.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

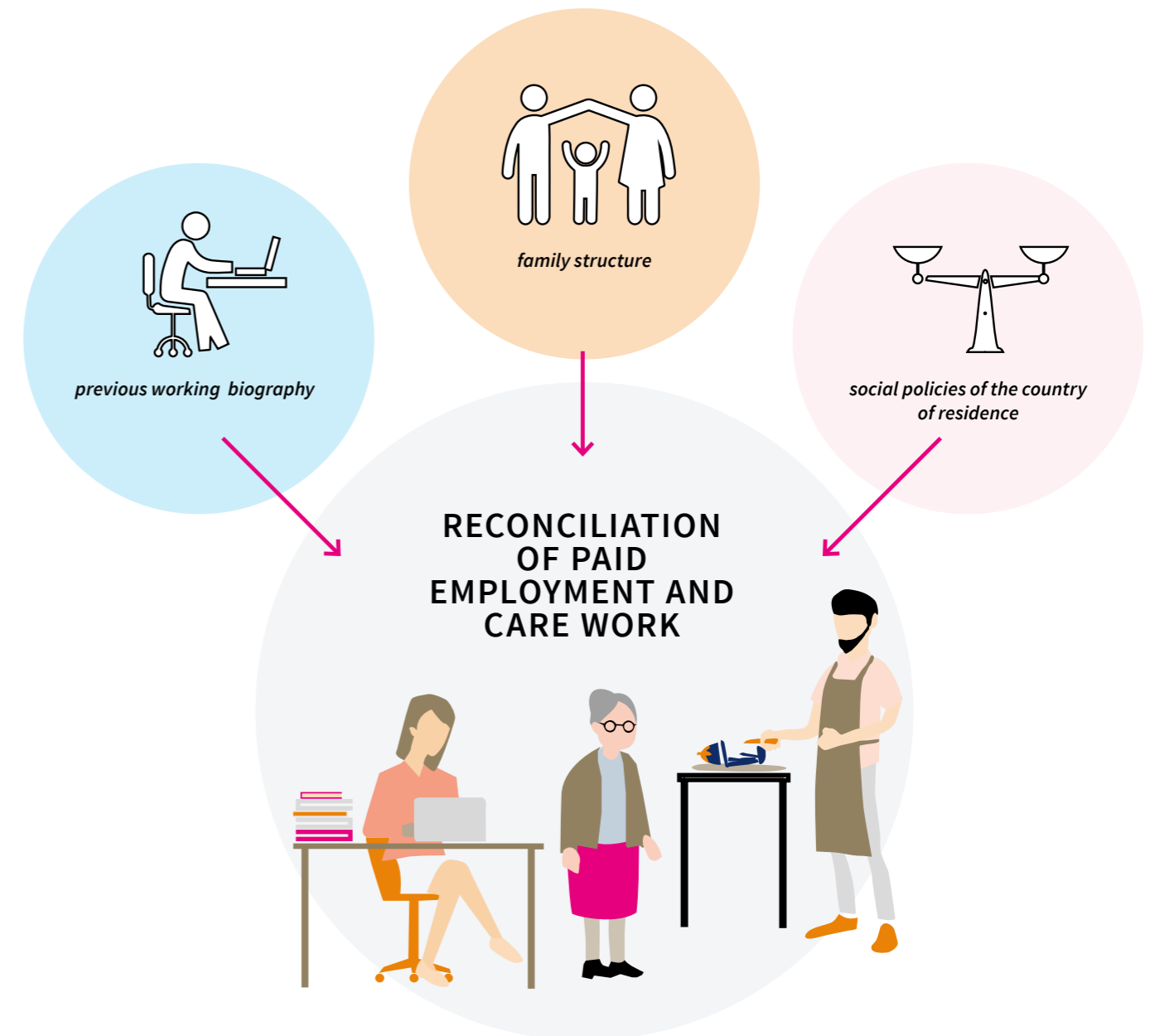
Extreme events, such as catastrophes, wars or economic depressions, have historically been shown to serve as catalysts for social change or major reforms of political institutions (thinking, for example, of Roosevelt's "New Deal" after the Great Depression or a "new green wave" after the Fukushima disaster). When looking at individuals, two developments are conceivable: Such events may either make people more aware of inequalities and raise levels of solidarity or they may increase the perception of insecurity, strengthen mechanisms of social closure and fortify social inequalities. The coronavirus pandemic represents an "exogenous shock" which can be used as a "quasi-natural experiment" in the social sciences to investigate the causal mechanisms. Sociologists are already investigating whether gender inequalities in the distribution of housework and childcare have re-traditionalised again – or whether the gap in school performance (and future educational chances) of children from different social strata has become more acute. I am working at the moment on German survey data to investigate how the coronavirus crisis has affected the exchange of informal social help (such as helping with shopping or in the household, looking after children, financial transfers and emotional support), how this type of "new" help in the wake of the lockdown differs from "old" helping relationships that were previously established and how these helping patterns differ across social groups, such as age, gender and social class.

Three contextual dimensions for work-family decisions

Demographic ageing means that we are living longer and longer, and the birth of a person's first child is happening later and later. These developments put our pension systems under pressure, and various reforms have been implemented in European countries which prolong the working lives of men and women. At the same time, people have always cared for their elderly relatives, and the contribution of family caregivers is still very important.

This poses new challenges for these men and women, namely, how to reconcile working, being an active grandparent and taking care of elderly family members.

These new reconciliation issues are at the core of my research. I aim to find out under what circumstances such reconciliation is successful: What does successful reconciliation have to do with our previous working biography, family structure and the country in which we live?



Jacob Bloomfield

Postdoctoral Fellow since 07/2020
Department of Literature



Tutti Frutti: Little Richard, sex, gender and transgression in America and Europe

My most momentous success in this academic year was receiving the offer for my Zukunftscolleg Postdoctoral Fellowship in January 2020. My fellowship began on 15 July 2020. My postdoctoral research centres on my project originally entitled 'Little Richard: Achieving Rock and Roll Stardom Through Gender Variance, 1955-1964'. My study investigates the extraordinary career of musician Little Richard; specifically, how he became one of the most successful figures in mid-twentieth-century popular music, achieving ground-breaking popularity with cross-racial audiences in the United States and Europe, while predicating his persona on male effeminacy and the suggestion of same-sex desire. I am grateful to the Zukunftscolleg for this unique and truly life-changing opportunity to pursue my research project. In addition to working on 'Little Richard', I will also spend the first 6-9 months of my fellowship revising my first monograph: Bloomfield, Jacob, expected 2021, *Drag: A Modern British History*. Berkeley: University of California Press. The monograph examines how drag performance remained critically and commercially popular

in 1870s-1970s Britain despite increasing cultural anxieties regarding the links between gender variance and transgressive acts, behaviours and categories of identity.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

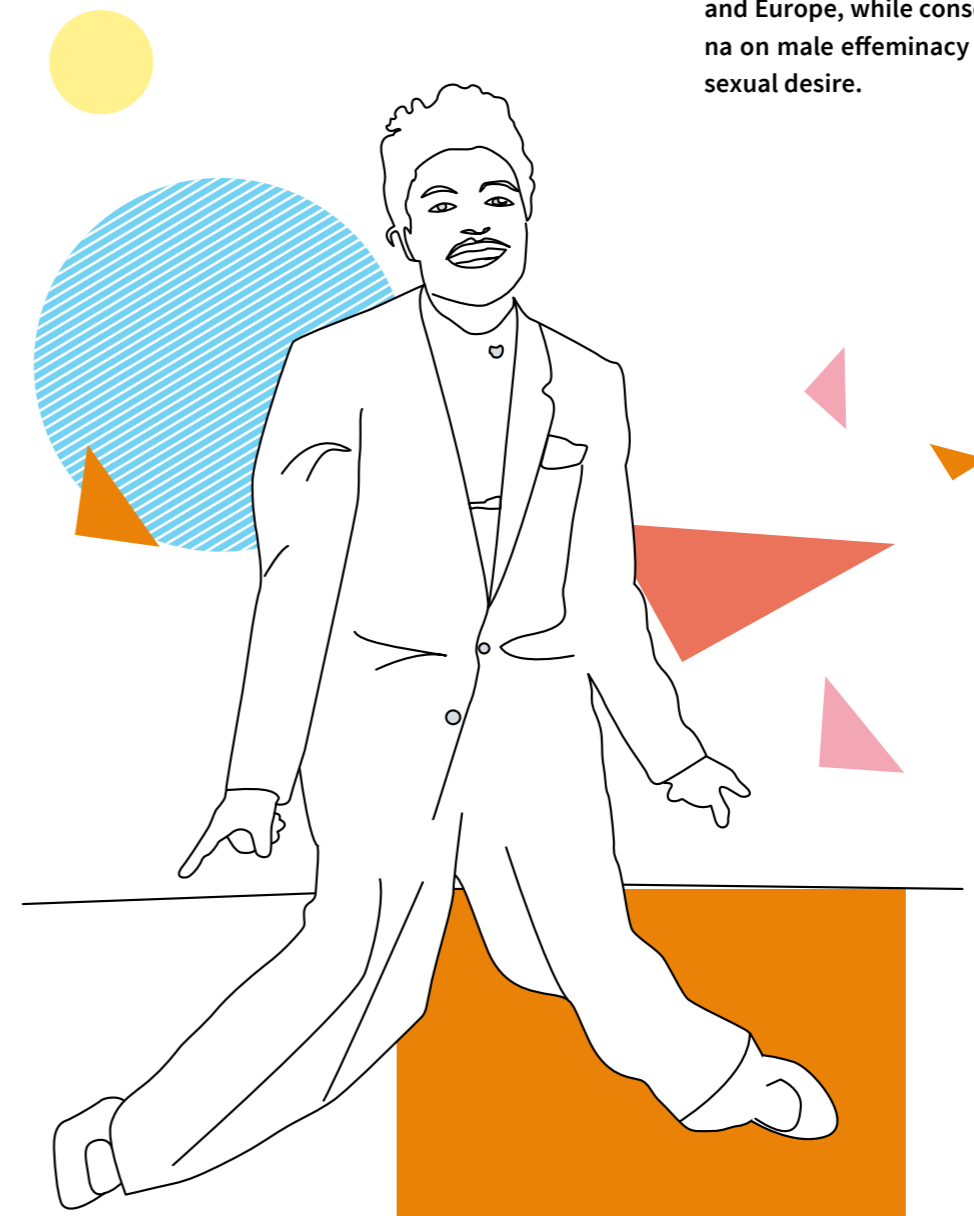
I believe that a potentially positive consequence of societal restructuring as a result of the ongoing public health crisis will be that more archival materials become digitized. Historians often have to devote huge amounts of time and resources to tracking down relevant archival material, setting aside time to examine primary sources, applying for funding to visit archives, and other tasks involved in primary source research. Expanding access to primary resources digitally will not kill off physical archives, but will supplement traditional archival research and ultimately mean that historians can conduct more effective and economical primary source research.

I also hope that academic publishers loosen their tight grip on secondary source material and expand access to e-books. Even with institutional access, obtaining secondary sources amid library closures has been difficult for historians and other scholars. Publishers should use this period to reflect on their responsibilities and work with specialist and non-specialist audiences to diminish gatekeeping.

I worry that the economic consequences of the pandemic, and a valorization of hard scientific disciplines over the humanities, will lead to further lack of funding for history and the liberal arts generally. I intend to do all I can to support colleagues against potential job losses, casualization and the general neglect of humanities research.

Race, gender, sexuality and consumption in Western culture – through the lens of Little Richard

Over four non-consecutive years – 1955-57 and 1962-64 – rock and roll musician Little Richard forged a path as one of the most consequential figures in modern popular music. He did this first as an early developer of the rock and roll genre – 'the architect of rock 'n' roll', as he fashioned himself. Then, after a self-imposed exile, Richard shifted into the role of custodian-father figure, actively shaping the genre's future trajectory through mentoring the next generation of rock acts, such as The Beatles and The Rolling Stones. Richard's profound degree of mainstream popularity in the mid-twentieth-century United States and Europe is extraordinary, given that – in a period defined by racial bigotry and pervasive repression of sexual and gender expression – the singer's success was predicated on being a highly effeminate, flamboyant African-American man. My project investigates the question of how the singer became one of the most successful figures in mid-twentieth-century popular music, achieving ground-breaking popularity with cross-racial audiences in the United States and Europe, while consciously predicating his persona on male effeminacy and the suggestion of homosexual desire.





Thomas Böttcher

Fellow since 03/2014
Department of Chemistry

Jackpot!

I have accepted the position as Full Professor for “Microbial Biochemistry” at the Faculty of Chemistry and the Centre for Microbiology and Environmental Systems Science of the University of Vienna. At the same time, I received an ERC Consolidator Grant.

I would say that 2019 was an amazing year!

→ Please also read the interview with Thomas Böttcher on page 4-7!

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

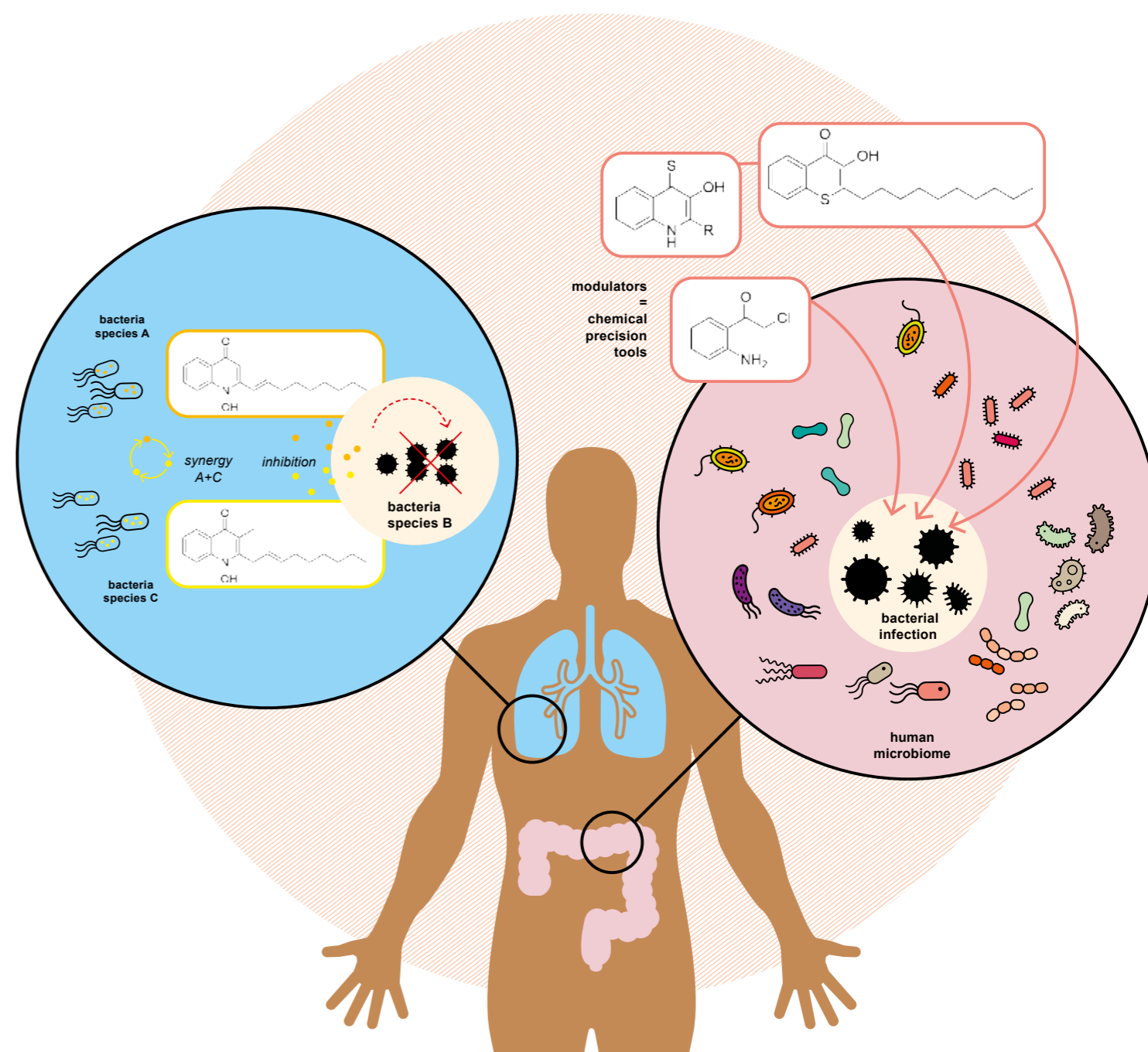
At the intersection of chemistry, biology and molecular medicine, all eyes are on the new coronavirus SARS-CoV-2. A large number of laboratories have joined the global efforts to investigate the virus or develop new diagnostic tools. While funding incentives and the anticipation of rapid, high-impact publications certainly have their downsides, the pace at which our knowledge about the virus is advancing is in my opinion unprecedented and highlights the immense power and adaptability of academic research. I am convinced that ten years from now the coronavirus SARS-CoV-2 will be the most investigated and probably best understood human virus in the world.

Small molecules and bacterial pathogens

The human body is host to an enormous number and diversity of microbes – known as the human microbiome. Microbes play an important role in influencing health and disease, often with the assistance of microbial metabolites. Additionally, the composition of our microbiome depends on competitive and synergistic chemical interactions between different microbial species.

We investigate the molecules involved in these activities and explore strategies to exploit them for the customized treatment of human diseases. Furthermore, we develop and synthesize modulators for the control of microbial behaviours like toxin production or motility.

Our vision is to map and dissect the chemical interactions in our microbiome and to discover and design chemical tools that study and inhibit bacterial infections with great precision.





Klaus Boldt

Research Fellow since 04/2015
Department of Chemistry

Quantification of material gradients in core/shell nanocrystals

In 2019, I developed a method to quantify material gradients between the core and the shell of core/shell nanocrystals. Semiconductor nanocrystals are often fabricated with a shell of a second semiconducting material in order to enhance their quantum efficiencies and produce materials that cannot be made using a single material. Often the difference between the crystal structures between core and shell can introduce defects. A strategy to counter this has been the formation of a gradual rather than abrupt change of materials at the core/shell interface. However, the spatial extent of such a gradient has not been measured before, and previous assumptions have often been guesswork. Using a combination of extended X-ray absorption fine structure (EXAFS) and Raman spectroscopy, I could show that strong diffusion of the cations, and hence formation of a gradient, already happen at moderate temperatures of 260 °C, often employed for the synthesis of core/shell nanocrystals that were assumed to have a sharp interface. At higher temperatures of 290 °C I could show that an ordered, ternary structure forms in the core to minimize strain of the crystal lattice, which makes it possible to explain and predict a number of opto-electronic properties of high-quality nanocrystals.

The experimental work was conducted at the Australian Synchrotron in Melbourne and was supported by a Zukunftskolleg travel grant. The findings were published in the Journal Nano Letters (IF 12.279) in January 2020.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

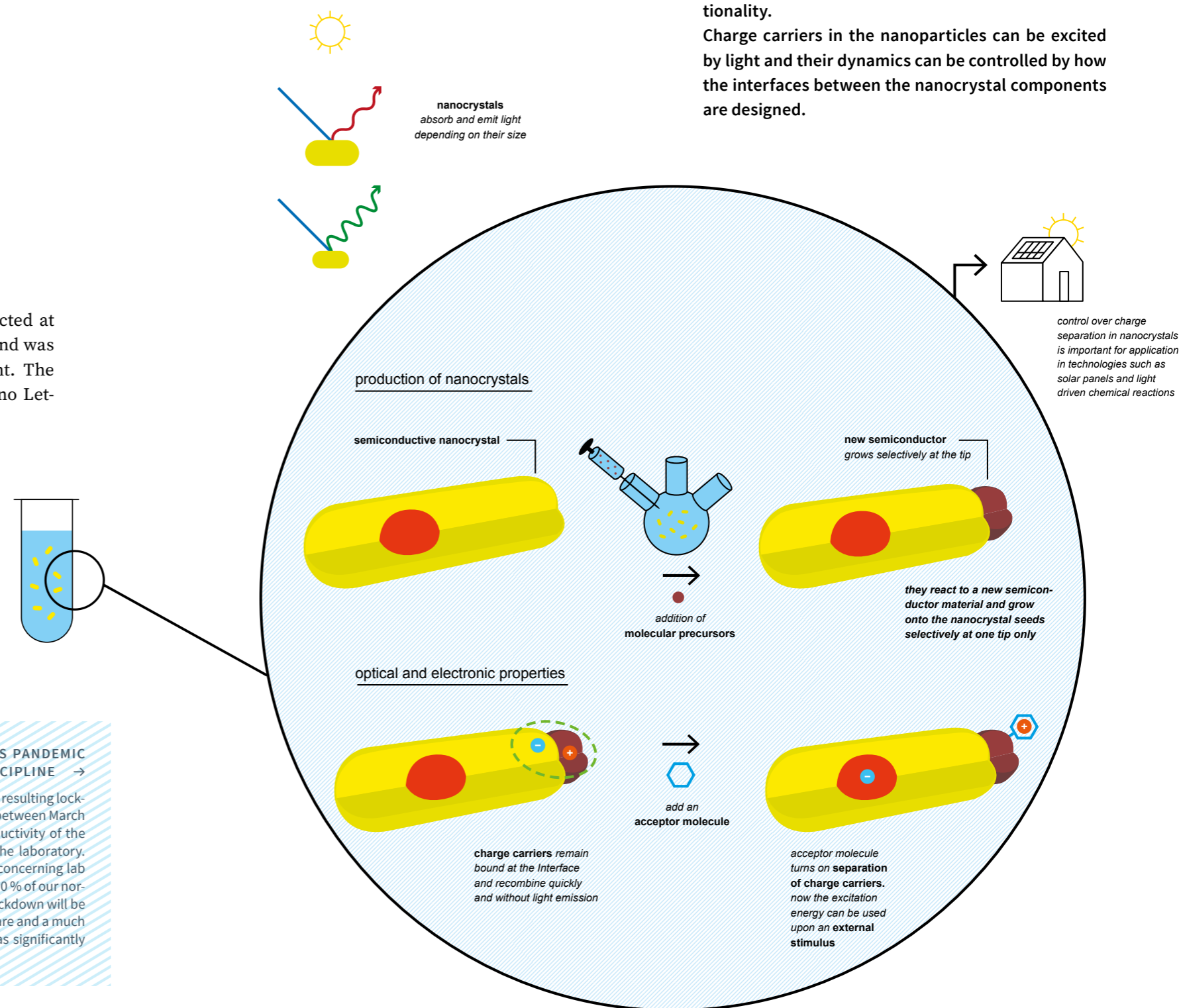
The outbreak of the COVID-19 pandemic and the resulting lockdown and closure of the University of Konstanz between March and June 2020 has severely impacted the productivity of the experimental sciences that require access to the laboratory. My group was lucky that due to circumstances concerning lab occupancy we could go back to 50% and then 100% of our normal working hours relatively quickly. Still, the lockdown will be visible in our research output. The lack of childcare and a much higher teaching workload (estimated 700%) has significantly cut into the time I have available for research.

Synthesis and physical properties of nanocrystals

Semiconductor nanocrystals, sometimes referred to as “artificial atoms”, are extremely interesting materials for many areas of modern technology because they absorb and emit light depending on their size. When two or more materials are combined, the resulting interface creates a new functionality that can be used, e.g. in solar cells, photocatalysis or optical switches. In molecules, many strategies have been developed to add functionalities at specific atomic positions. It is difficult to fabricate analogous “artificial molecules” from nanocrystals.

I work on regio-selective methods of growing nanocrystals and heterostructures that exhibit optical and electronic properties with a preferred directionality.

Charge carriers in the nanoparticles can be excited by light and their dynamics can be controlled by how the interfaces between the nanocrystal components are designed.





Svetlana Boycheva Woltering

Research Fellow since 04/2020
Department of Biology

Becoming a member of the Zukunftscolleg

As a new member of the Zukunftscolleg, I consider my acceptance to be my highest achievement in this academic year. It is not only a great opportunity for professional development and for achieving scientific independence but also a way to get a glimpse of other people's work and discuss ideas and views.

My project is based on one of the most important recycling mechanisms in living organisms, autophagy, or self-eating. My main scientific goal is to add significantly to the knowledge on the subject not only at molecular and physiological level but also in terms of biodiversity and natural variation. Together with my host, I recently submitted a review summarizing the current state of understanding of autophagy sensing and signalling, which is directed at the scientific community. Additionally, I consider scientific communication an essential part of the work and will therefore strive to write articles for a more general public as well.

Finally, I am hoping to use the Zukunftscolleg community to popularize and discuss recycling and the ways we could contribute to creating and maintaining sustainability.

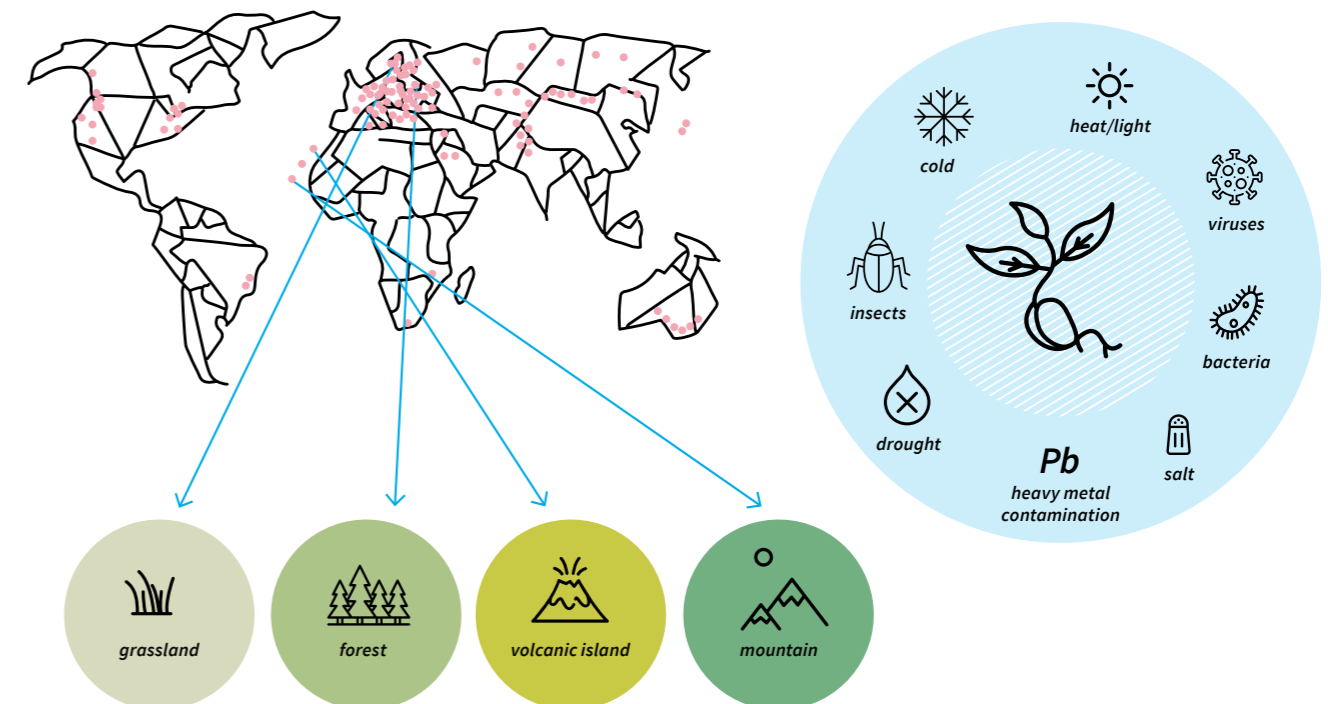
MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

As someone who works in a field that is more than 50 % dependent on experimental data, I was unable to perform my normal work. Working from home meant only analyzing existing data or writing publications. At the start of the lockdown, I had to terminate many experimental plants, although I perfectly understand that the situation was far less grave than terminating experimental animals. In my case, I think I have lost the equivalent of 3-4 months of work. Of course, I greatly appreciate the fact that we were already allowed to return to work at the end of April.

In the long term, I estimate that the current situation will have a very strong impact on experimental research altogether. While the lost time does not seem very significant, its impact increases considerably when resources and consumables are taken into account. Academia is publicly funded with budgets determined long in advance. The financial impact will therefore be somewhat delayed, but still inevitable.

Natural variation of autophagy – a major recycling pathway

Autophagy, or self-eating, is a major recycling route confining damaged or no longer needed parts of the cell to a bubble-like structure (autophagosome), which is then degraded (in the vacuole) into building blocks that can be reused. In order for a plant to start autophagy, it needs to experience lack of a major nutrient, environmental stress or a pathogen attack. The plant *Arabidopsis thaliana* has thousands of natural varieties living in habitats which differ in latitude, altitude, soil type, light regime, temperature and water availability. Using a screening, based on the response of those varieties to prolonged darkness, we are investigating their different ability to perform autophagy and the mechanisms behind. What are the signals inducing autophagy? How are the different stimuli sensed by the plant? How is the process regulated? When and how is the autophagy machinery maintained in a functional state?



natural variants have different need to recycle

signal perception and transduction

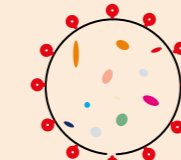
induction



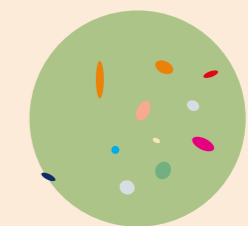
phagophore



degradation



autophagosome



vacuole



Sidney Carls-Diamante

Postdoctoral Fellow since 07/2020
Department of Philosophy

Philosophical explorations of bipolar disorder

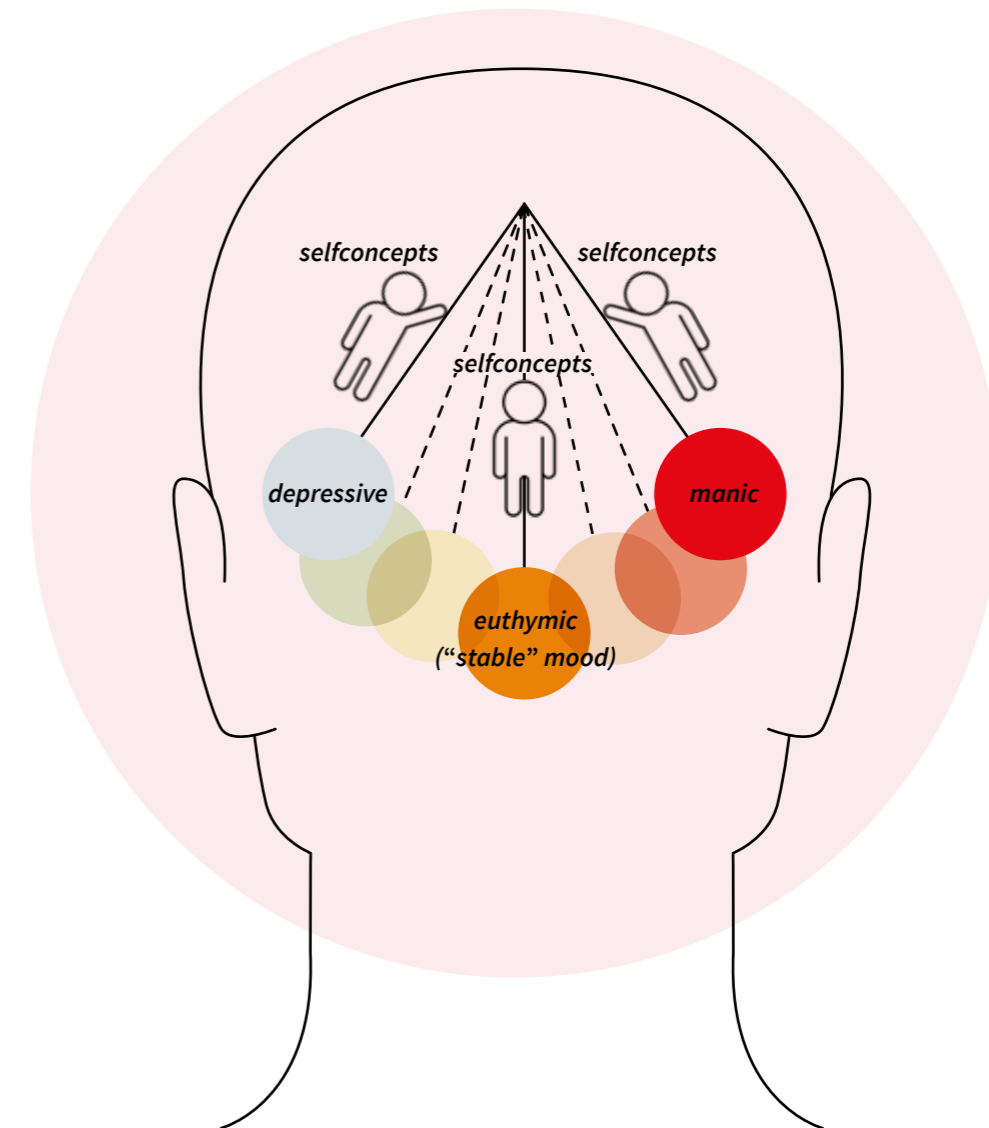
I took up a position as a Two-year Postdoctoral Fellow fellow at the Zukunftskolleg on 01.07.2020. My project introduces a philosophical dimension to research on bipolar disorder by investigating the existential issues that emerge from living with the illness. In particular, it explores the challenges that arise from the complex relationship between bipolar disorder and the structure of personality and identity. The project addresses the pressing need for humanistic research in psychiatry, whereby the existential concerns arising from mental illness are examined from the perspective of the patient's life experiences. The broader objective of the project is to help understand and improve experiences of living with bipolar disorder.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

The COVID-19 pandemic has had an unprecedented impact on mental health. Lockdowns, quarantines and other public health measures have had an adverse psychological effect on many. However, an unexpected – and significant – finding has also arisen: A large number of individuals with various psychiatric or psychological conditions have reported alleviated symptomatology as a consequence of reduced social interactions. As such, this latter finding calls attention to a phenomenon that contemporary Western psychiatric and psychological traditions have not extensively studied: The positive effects of solitude on mental health. It is thus foreseeable that more attention will be devoted to investigating the role of solitude as a means of maintaining mental health.

Bipolar disorder and sense of identity

Bipolar disorder, sometimes called manic-depressive disorder, is a severe and common psychiatric illness characterized primarily by pathological mood swings. While on the one hand its depressive phase causes intense suffering, on the other hand its manic phase can bring about “positive” aspects such as immense creativity and productivity; there is an abundance throughout history of great writers, artists and musicians with bipolar disorder. As bipolar disorder is typically heritable and lifelong, its symptoms have a profound effect on the development and structure of the personality. This can lead to confusion about whether one's individual traits are the result of one's “true self” or are manifestations of the illness, among other issues. My project uses philosophical theories about personhood and identity to provide new insights on how to address and resolve such concerns.





Panteleimon Eleftheriou

Research Fellow since 05/2015
Department of Mathematics and Statistics

Zilber's Trichotomy Conjecture in the setting of o-minimal structures

In the paper “Strongly minimal groups in o-minimal structures”, Eleftheriou, Hasson and Peterzil proved an o-minimal version of Zilber’s influential Trichotomy Conjecture stated in the 1980s. The gist of the conjecture is that we can recover algebraic information for a structure from combinatorial data. Consider, for example, the following three structures: (1) a set with no mathematical operations, (2) a set with addition (called a group), and (3) a set with addition and multiplication (called a field). The richer our structure is, the more complex the combinatorial relation between its elements becomes. For example, in (1), we can only talk about two elements being equal or not, in (2), about an element being in the linear span of another, and in (3) about being in the algebraic closure of another. Zilber’s Trichotomy Conjecture states, conversely, that depending on the complexity of the combinatorial relation of a structure, we can recover a pure set, a group or a field.

Zilber’s Trichotomy Conjecture in its full generality was refuted by Hrushovski in the 1990s. Nevertheless, the conjecture stayed alive because it turned out to be true in various restricted settings, and moreover its verification in those settings gave rise to important applications (such as in Diophantine geometry). In 2005, Peterzil asked whether the conjecture is true in the setting of o-minimal structures. In the aforementioned paper, Eleftheriou-

Hasson-Peterzil answered this question affirmatively. The paper has been accepted for publication in the high impact factor “Journal of the European Mathematical Society”. In current research, the authors explore the potential applications of this result to Diophantine geometry.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

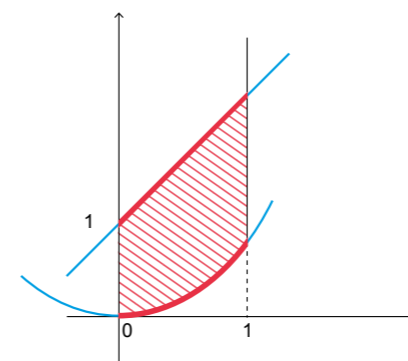
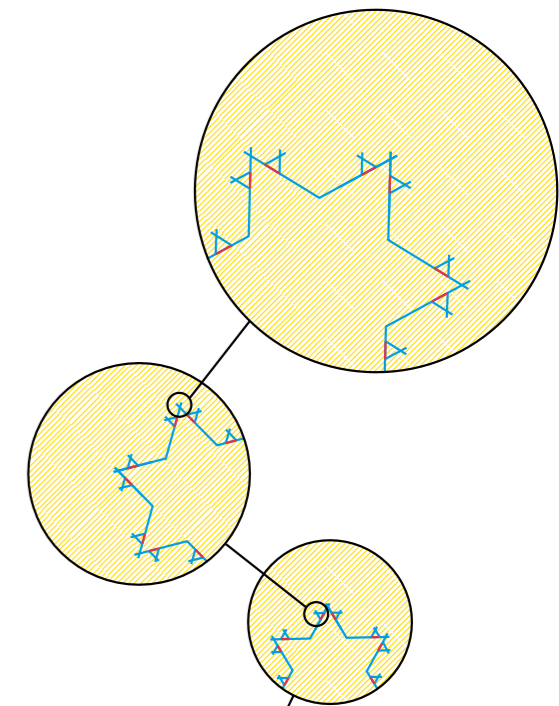
The coronavirus pandemic really had only a minor impact on my research. If it were not for my visit to Pisa (which had to be postponed), my academic life would have been almost the same. Research with my international colleagues continued as always, and seminars ran online (in fact, it was possible to attend more of those now). All conferences, however, were cancelled. Personally, I refrained from attending too many seminars online or giving talks online. It is a matter of personal taste. I am not a fan of virtual reality!

Groups definable in tame expansions of o-minimal structures

Tame Geometry is an area of mathematics, where geometric objects satisfying certain tameness conditions imposed by logic are studied. An algebraic set is defined using polynomial equations and inequalities and the logical symbol “AND”. It is considered tame because its basic properties, such as volume and dimension, are easy to calculate.

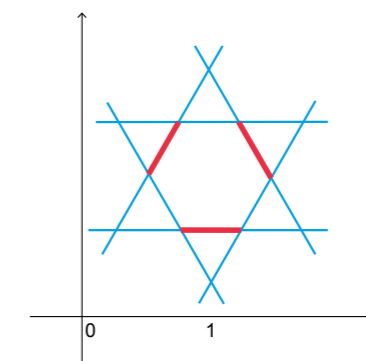
On the other hand, a fractal, such as the Koch snowflake, exhibits peculiar and abnormal properties and is not considered tame.

Tame Geometry strives to identify exactly those geometric objects which, although large in scope, still exhibit tame behaviour.

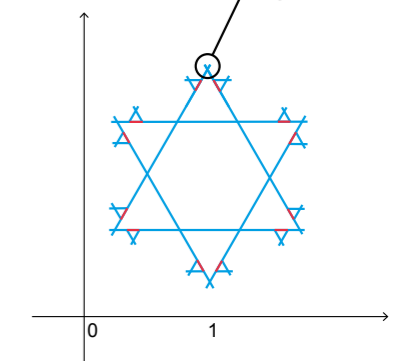


tame

$$Y \leq X + 1 \text{ AND } Y \geq X^2$$



tame



not considered tame

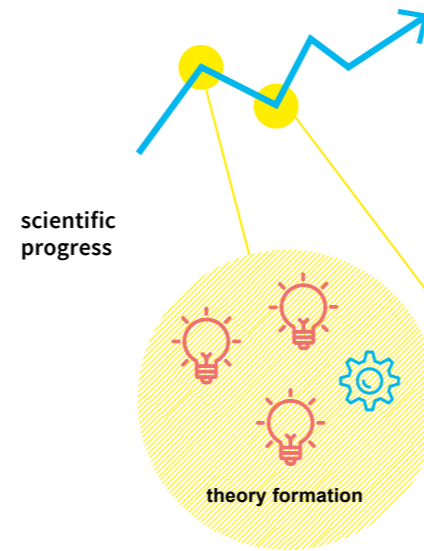
cannot be expressed as a solution set of a simple logical formula

Benjamin Eva

Research Fellow since 04/2019
Department of Philosophy

Inferring causal relationships

Since beginning my Zukunftscolleg Fellowship in April 2019, I have been able to make great strides in my research and my professional development more generally. I have presented my work at stimulating conferences around the world, published four articles in important journals, and I also had the opportunity to teach a course at the Department of Philosophy, which I enjoyed immensely. From a research perspective, I think my proudest achievement from the last year is an article entitled 'Anti-reductionist Interventionism' that I coauthored with Reuben Stern, which is now forthcoming in the British Journal for the Philosophy of Science. The article is the result of long-running research collaboration that focuses on the question of when we can legitimately infer causal relationships from observational data. It proposes a new solution to a problem that arises when we try to infer causal relationships between variables that describe the world at different levels of detail. From a purely professional perspective, my biggest achievement from the last year is probably securing a tenure track professorship! I definitely feel that the Zukunftscolleg's support over the last 18 months contributed a great deal towards this.



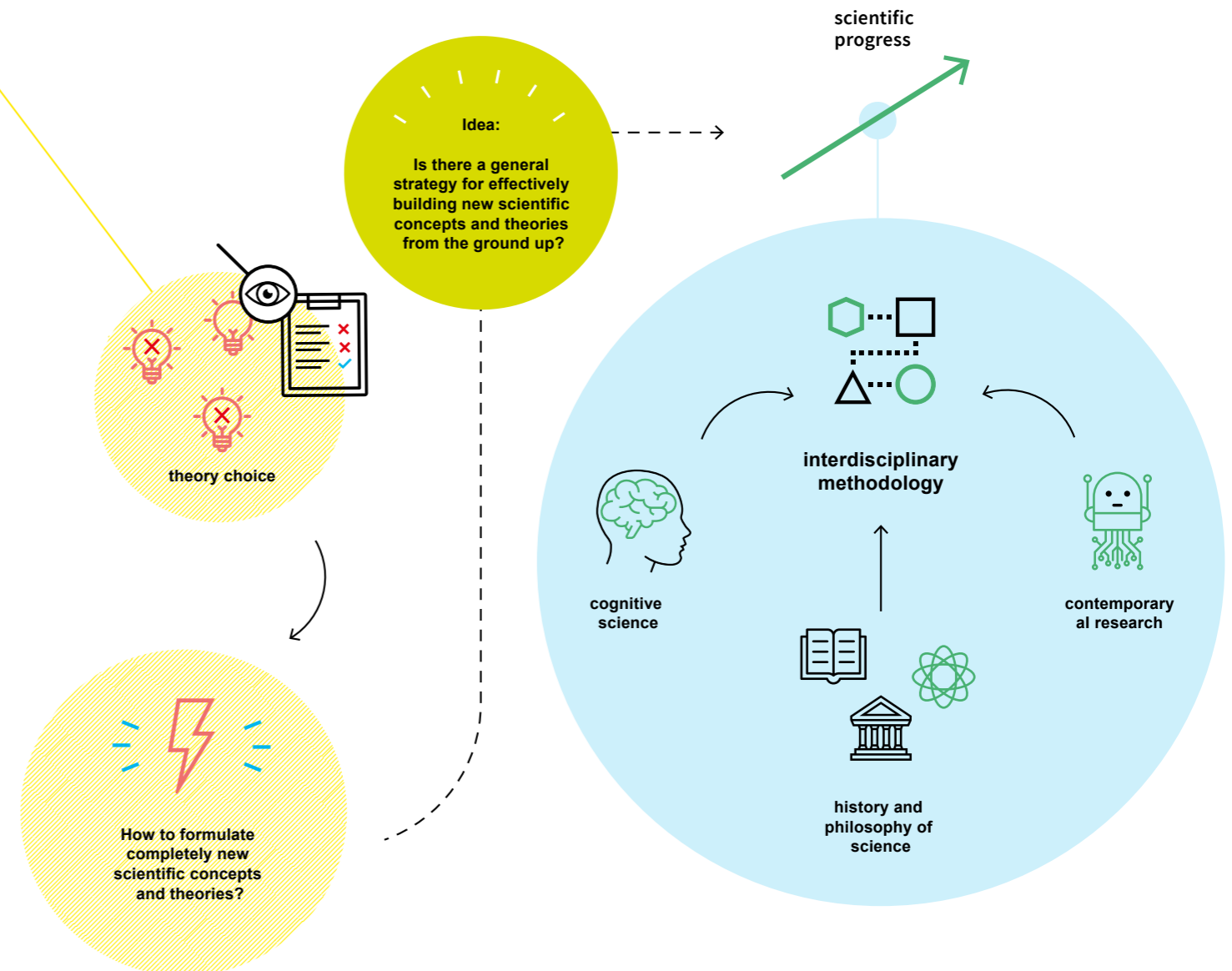
MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

Clearly, the coronavirus has already brought about a plethora of quite fundamental social and economic changes, and it seems inevitable that these changes will have major long-term impacts on the way that large parts of the world lead their lives. One very significant effect of the virus has been that it has, in some sense, forced societies to reevaluate what is most important in life. On a more personal scale, the virus seems to have made many people question the way that their personal and professional lives relate to one another. On a larger scale, the virus has brought a number of social and political issues into sharper relief, illustrated complex problems surrounding the way that groups form opinions and make decisions, and brought into question what aspects of our pre-virus lifestyles actually contributed to our happiness and well-being. This all suggests that the coming years will require a great deal of soul-searching and a reevaluation of the fundamental priorities of our societies. And such a reevaluation will, of necessity, require a great deal of clear and rigorous thinking about what we value at personal level and how we can structure our societies in a way that best realizes those values. I think that philosophy, as a discipline concerned with clarifying and systematizing the most basic concepts that structure the way we think about the world, has a huge role to play in this process, but that it needs to be ready to engage more meaningfully with the sciences and the real world if it is to have the impact we need it to have.

Defining general strategies for building new scientific concepts and theories

Scientific progress relies on two basic processes. First, scientists need to invent concepts and theories that provide fruitful descriptions of the world. We call this the process of "theory formation". Second, scientists need to test and evaluate these theories in order to select the "best" theories. We call this the process of "theory choice". Until now, scholars of the scientific method have focused almost exclusively on identifying the rules that scientists should follow in process of theory choice. By contrast, very little has been said about the norms of theory formation.

In my project, I explore the possibility of defining general strategies for building new scientific concepts and theories effectively. I use a highly interdisciplinary methodology that utilizes insights and resources from cognitive science, the history and philosophy of science and contemporary AI research. In addition to shedding light on the nature of scientific progress, I aim to make real progress in automating some of the most mysterious and creative parts of the scientific enterprise.



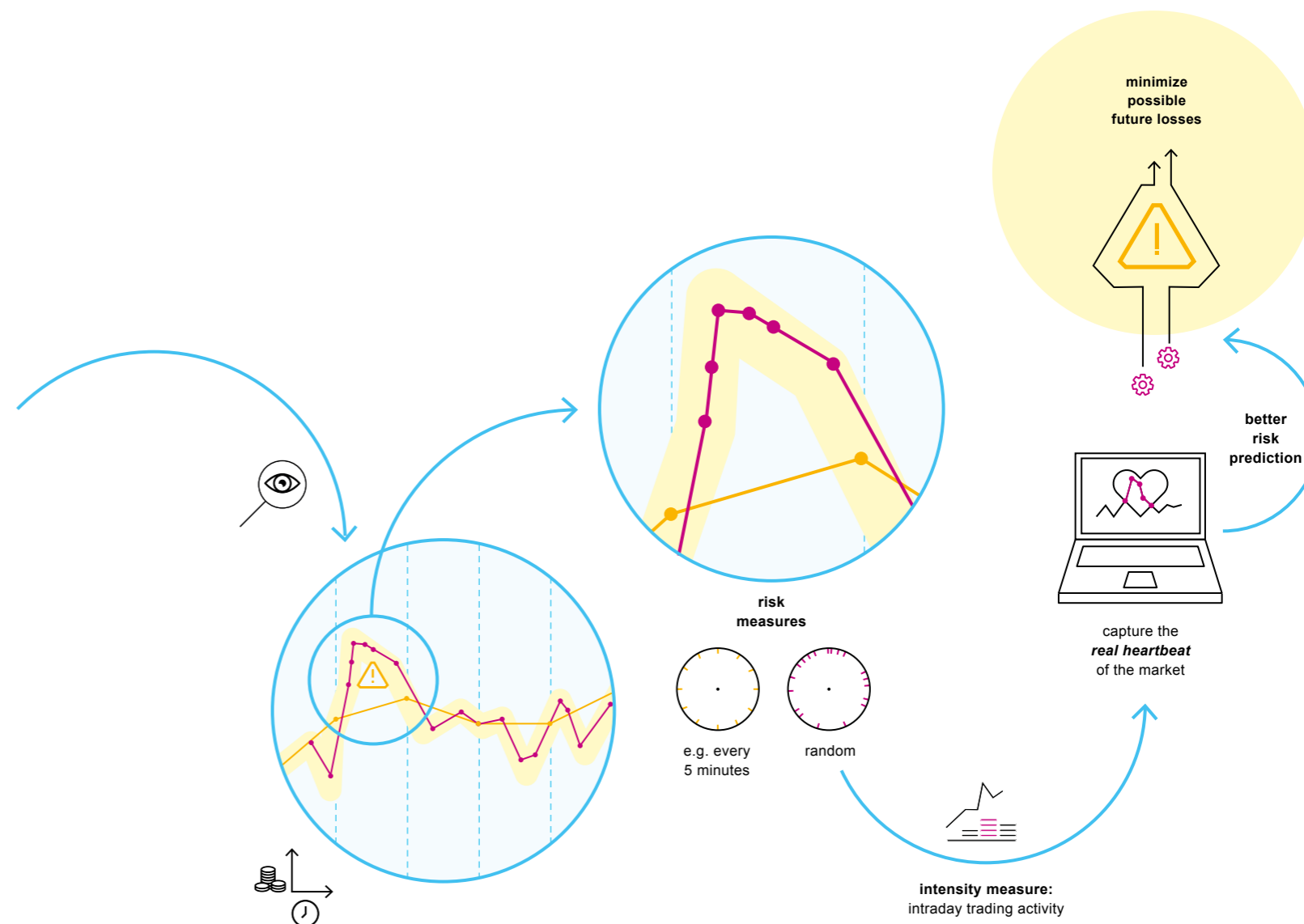
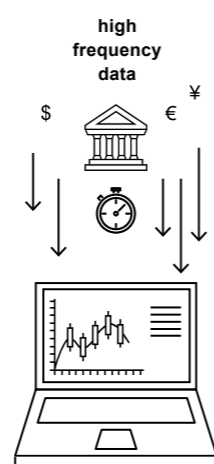


Roxana Halbleib

Research Fellow from 10/2013 until 04/2020
Department of Economics

Looking back with gratitude, looking forward with excitement

In the last academic year, I finished the postdoctoral phase of my academic career and took up a position as Full Professor for Statistics and Econometrics at the University of Freiburg. It was an interesting and challenging year in my professional development, as I had the privilege and at the same time was faced with the challenge of choosing between two very attractive offers (including one from TU Dresden (Dresden University of Technology) as Professor of Big Data Analysis in Transportation). I am very grateful for this opportunity and for the financial, professional and personal support I received during my doctoral and postdoctoral years from the University of Konstanz and in particular from the Zukunftskolleg and from the Chair of Economics and Econometrics at the Department of Economics. I am very much looking forward to the numerous challenges and opportunities of this profession as well as to fulfilling my duties and attaining my aspirations with the general goal of making the academic environment a better place, in particular with regard to embracing diversity and providing equal opportunities.



Predicting financial risks

Risk is part of every human endeavour. The goal of all individuals is to assess, understand and minimize risk and the potential loss that comes with it.

My research deals with financial risks at the juncture between data science, finance and statistics/econometrics. My approach to providing accurate predictions of the risk is to exploit the richness of the information content of big high-frequency financial data currently available.

I undertake a non-standard approach of sampling this big data not equidistantly in clock time, but more often when the market is active and less often when the market is calm. The motivation is that the events triggering risks do not occur regularly in time.

Based on this data, I develop mathematical models that help predict the risks more accurately when they are needed most. They are built on the principle of subordination, which means replacing the fixed clock time with a random transformation of it.



Violeta Ivanova-Rohling

Postdoctoral Fellow since 06/2020
Department of Physics

The importance of machine learning

My greatest academic success this year was the start of my fellowship at the Zukunftskolleg with my project “Machine learning for quantum state tomography” in June 2020. I had the opportunity to introduce colleagues from the Zukunftskolleg to my research topic, the importance of machine learning (ML) and quantum computing and how ML can be used to improve quantum state tomography. Additionally, I spoke on the racial and gender (algorithmic) bias of ML algorithms and the severe consequences for people of colour. I have had several extremely productive meetings with my host, Professor Burkard, whose feedback has given me ideas regarding other areas in quantum computing to which I can contribute. Several other aspects, aside of quantum state tomography, such as quantum process tomography, present significant problems, which can be addressed with machine learning approaches. As part of a collaboration between IBM and Fraunhofer, an IBM quantum computer will be installed in Germany in 2021. It would be especially exciting to expand research to include that particular deployment of a quantum computer. I was given the opportunity to teach a seminar next semester entitled “Machine learning for quantum computing and quantum-enhanced

machine learning” and am looking forward to it. It was very rewarding for me to give a talk about ML to my colleagues at Professor Burkard’s chair, which I hope will help them to use such algorithms in their research.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

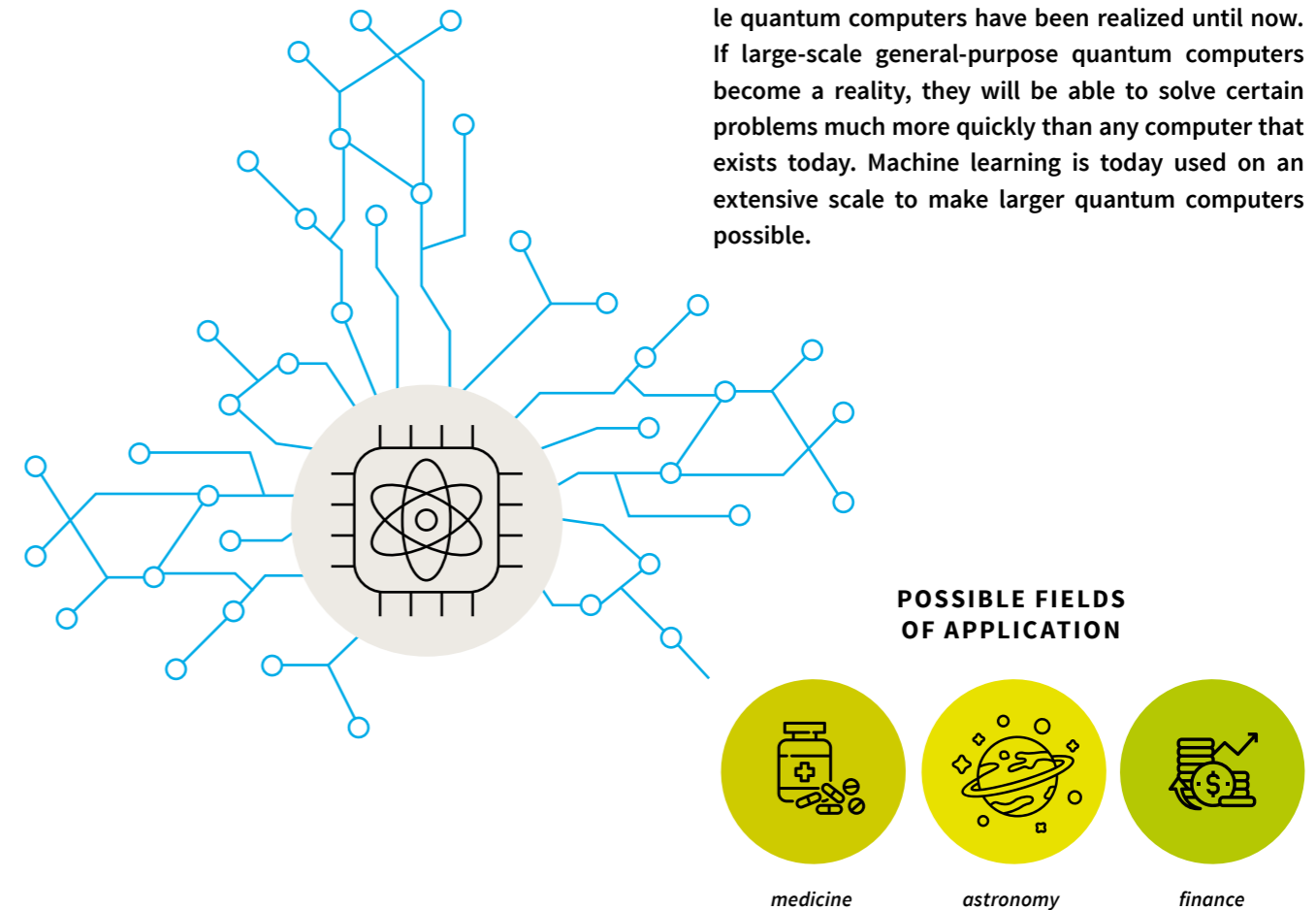
The COVID-19 pandemic might create an urgency that will speed up research in the field of machine learning and quantum computing and bring forward a new technological revolution sooner than expected. The pandemic will further accelerate digitalization. We may see benefits of further globalization in science, where a more globalized flow of ideas can have a very positive effect on innovative research. With digitalization, the need for more powerful and sophisticated machine learning and artificial intelligence algorithms will also increase and this will further stimulate research efforts in the field. Moreover, with increased digitalization and the growing volume of data as a result, quantum computing technology will be crucial. Quantum computers will transform scientific fields such as astronomy, where mountains of petabytes of data must be processed in order to acquire scientifically relevant information. The pace of medical breakthroughs and development of new medicines will greatly accelerate.

Using machine learning to make quantum computers possible

The topic of my research is how to use machine learning in order to help with the implementation of certain aspects of quantum computing. The fields of machine learning and quantum computing are two of the hottest in research today. By promising to allow us to solve currently unsolvable problems, which are currently computationally unsolvable, both fields will have an enormous impact on every aspect of our lives.

Machine learning is a subfield of artificial intelligence, in which we give machines access to information and let them use that information to learn. Machine learning is already used in our everyday lives. It is used in what Amazon or YouTube recommend to us; Uber or Lyft use machine learning and so do the autopilots in commercial airlines. In science it has helped fields such as drug discovery, cancer research and personalized medicine. Recently, machine learning is finding application in the area of quantum computing.

A quantum computer can use certain phenomena from quantum mechanics, such as superposition and entanglement, to represent data and perform operations on it. Instead of using bits, which can be on or off, like today’s computers do, quantum computers use qubits, which, in addition to being possibly on or off, can be both on and off until a measurement is made. The state of a bit on a normal computer is known with certainty, but quantum computation uses probabilities. Due to their complexity, only very simple quantum computers have been realized until now. If large-scale general-purpose quantum computers become a reality, they will be able to solve certain problems much more quickly than any computer that exists today. Machine learning is today used on an extensive scale to make larger quantum computers possible.





Jolle Jolles

Postdoctoral Fellow since 03/2018
Department of Biology

Opinion paper in Trends in Ecology and Evolution

For me, the highlight of this academic year was the publication of a large-scale opinion paper in Trends in Ecology and Evolution (and making the front cover). This paper, which I wrote together with two collaborators in the UK, is the culmination of years of work. The collaboration was made possible by a Mentorship grant of the Zukunftskolleg. Already during my master's degree, I started to focus on individual differences and social behaviour. This then led to my PhD, which focused on the role of animal personalities in collective behaviour, using sticklebacks as a model species. Thanks to the support and freedom I received with my Zukunftskolleg Postdoctoral Fellowship, I was able to expand this research interest and my expertise. With this paper, we present a universal framework to understand how individual heterogeneity matters for collective behaviour and group functioning across social and ecological scales. This work not only provides the foundations for my own research in the years to come but will hopefully also help advance the field in a new interdisciplinary direction to add another layer of understanding to collective animal behaviour.

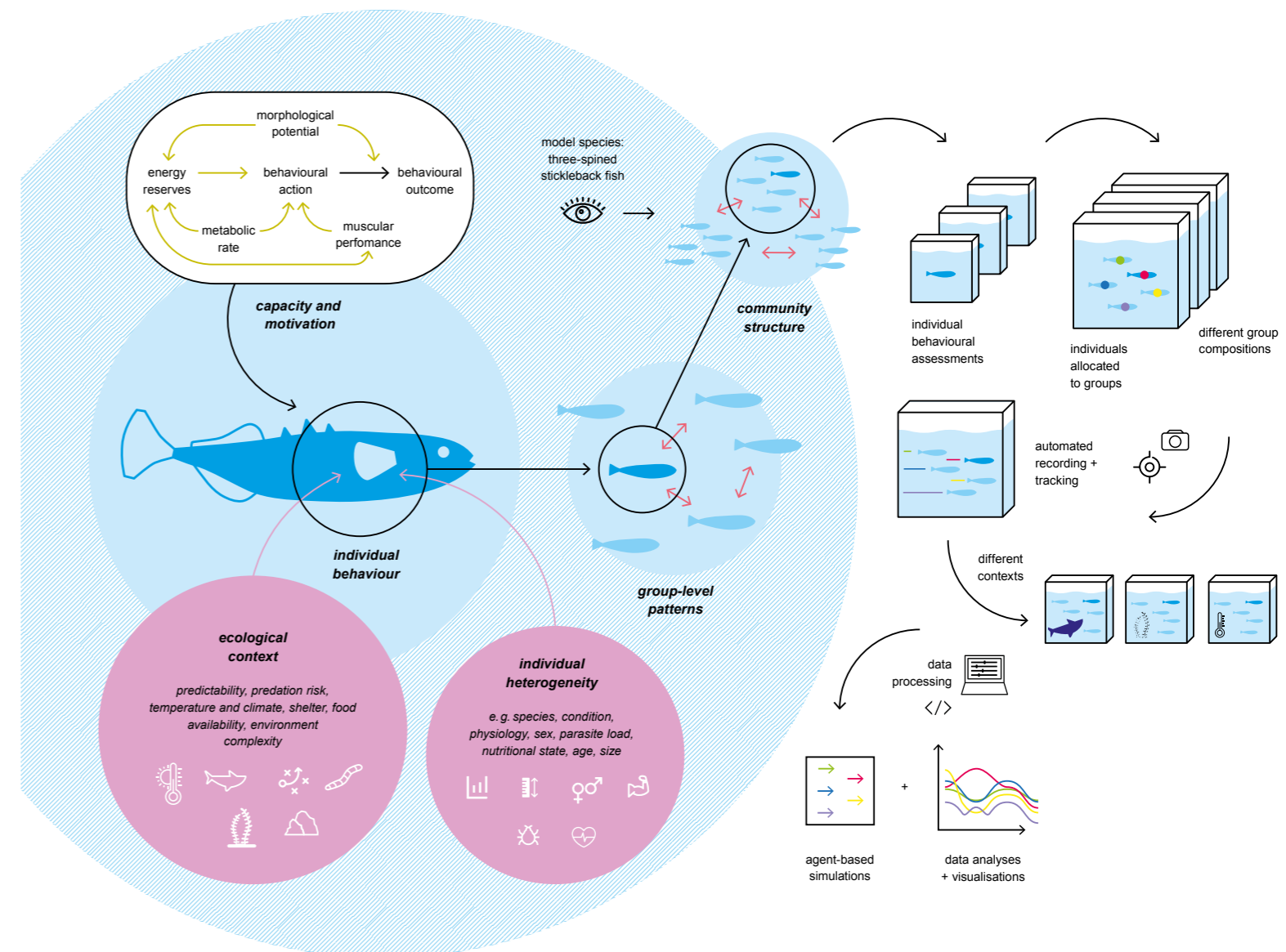
MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

I think the COVID-19 pandemic might have two lasting impacts on the future of my discipline, collective behaviour research. Firstly, although quite extensive work has already been done on the role of parasite and disease transmission within and among groups and across social networks, I think this pandemic highlights the urgent need to explain and predict much more accurately how disease spreads and how to potentially stop it. This will require considerable interdisciplinary effort and further integration of different methodologies (e.g. theoretical analyses, model simulations, social demographics, and behavioural monitoring and experiments). Secondly, more broadly I think the pandemic may lead to more computational and less empirical research in the field of collective behaviour. Due to the severity of the pandemic (in Europe), studying animals in the field was completely out of question, and it remains highly uncertain when field projects can run properly again. Due to this uncertainty, many researchers have had to shift their focus and may even decide to reduce field projects in the years to come. Individual-based modelling and theoretical analyses already form a large and fundamental part of research done in the field and are therefore likely to experience renewed interest due to the ease with which this work can continue even during strict lockdown conditions.

The role of individual differences in collective animal behaviour

Throughout the animal kingdom, animals live and move together in groups. From the small-scale interactions among individual group members, seemingly complex large-scale collective patterns emerge that are often strikingly beautiful, such as the highly synchronized movements of schools of fish and flocks of birds.

My research is focused on understanding what role individual differences play in the emergence of collective behaviour. Using three-spined stickleback fish as my model species, I investigate how personality differences, such as boldness, activity and sociability, and other levels of heterogeneity, e.g. the sex and parasitic state of individuals, drive collective behaviour. By combining laboratory experiments, in which we track individual fish, with field observations, we have demonstrated that individual heterogeneity has large consequences across social and ecological scales, including variation in the structure, leadership, movement dynamics, and functional capabilities of groups.





Henri Kauhanen

Postdoctoral Fellow since 10/2019
Department of Linguistics

The evolutionary dynamics of linguistic identity

People use language not only to convey information and refer to things in the outside world but also to influence others and to establish, confer and confirm group identity. While much empirical work has been devoted to studying how linguistic variants – different ways of saying the same thing, e.g. different pronunciations or different word choices – develop and carry social meanings, the population-level mechanisms of this phenomenon remain poorly understood. In a new attack on this problem, I am repurposing concepts and techniques from evolutionary game theory (EGT), a framework commonly used in biology and economics to elucidate complex processes of cooperation and competition that unfold over time, to study the social dynamics of language. In particular, I am proposing an EGT-based model of how linguistic variants acquire the role of identity markers, so that usage of one or the other variant by individual speakers comes to signify group membership, and how these social meanings either do or do not sustain sociolinguistic division in the long run. The model is simple enough to be solved using analytical mathematical tools in some of its special cases, but complex enough to account for empirical data: In particular, comparison with classical sociolinguistic data shows that

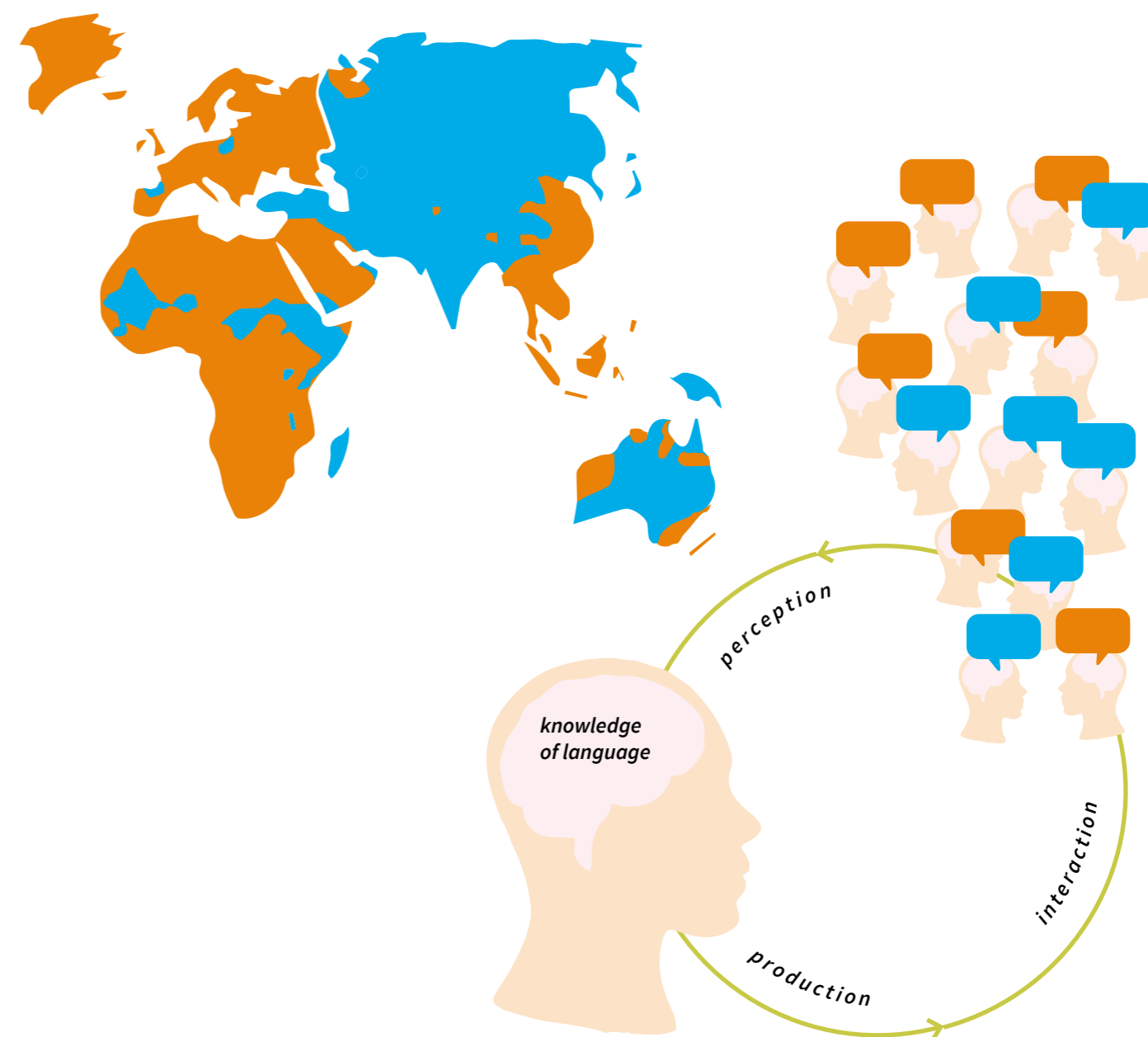
the model can be used to explain certain patterns of social stratification in adolescent linguistic behaviour.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

Linguistics is, among other things, a social science. As a consequence, the discipline can be speculated to be affected by a pandemic such as COVID-19 in two very different ways. First, the usual observations regarding limited access to infrastructure apply: It is very difficult to conduct some forms of research and impossible to conduct others (such as offline experiments with human subjects) in lockdown. As a consequence, the uptake and general acceptance of online forms of experimentation (as well as online forms of information dissemination, e.g. in the form of online conferences) may be expected to hasten. On a more fundamental level, however, the object of study itself may undergo changes in response to the pandemic. As people's patterns of physical movement and association with others change, so do the preconditions for (some forms of) linguistic change or the upkeep (or not) of linguistic variation. It is too early to say with any confidence what the effects of a prolonged lockdown might be in this regard, but it will certainly be interesting to see those effects unfold in the future.

From local interactions to global diversity

Human linguistic diversity is staggering: About 7.000 distinct languages are spoken around the world, with an order of magnitude more dialects. All languages also undergo changes that accumulate, snowball-like, over repeated everyday interactions, and consequently linguistic variation is never static. Making sense of this variation and change requires viewing language as a multilevel phenomenon, whose large-scale, global regularities arise from innumerable interactions at lower levels. To test specific hypotheses about the dynamics of language, I formulate them as mathematical models, whose behaviour I then examine in computer simulations or using analytical mathematical methods. Finally, the models' predictions are evaluated against empirical data, which may either corroborate or refute the original hypotheses.





Cornelia Klocker

Postdoctoral Fellow since 04/2019
Department of Law

Non-discrimination and empowerment: Exploring collective dimensions

After being accepted for the Zukunftskolleg Mentorship Programme last year, in March 2020 I visited my mentor, Dr Tove H. Malloy at the European Centre for Minority Issues (ECMI) in Flensburg, Germany. We had a series of inspiring and very productive discussions on the rights of minorities and their relationship with empowerment as well as on my current project in a very fitting location, the border region between Germany and Denmark. In addition, I was invited to present my current research to the members of ECMI as well as at the Research Colloquium of the Interdisciplinary Centre for European Studies (ICES), Europa-Universität Flensburg. At ICES, I also had the opportunity to discuss my research with Professor Anna Katharina Mangold, LL.M., in particular regarding questions of categories in the field of non-discrimination. I would like to thank everyone at ECMI and ICES and in particular Dr Malloy for the very warm welcome I received in Flensburg and I am hoping to visit again.

In addition, the monograph based on my PhD thesis was published by Routledge in May 2020.

It is entitled 'Collective punishment and human rights law: Addressing gaps in international law' and discusses the intersections between the law of armed conflict and human rights law based on the example of collective punishment and the arising implications for the study of group rights in human rights law.

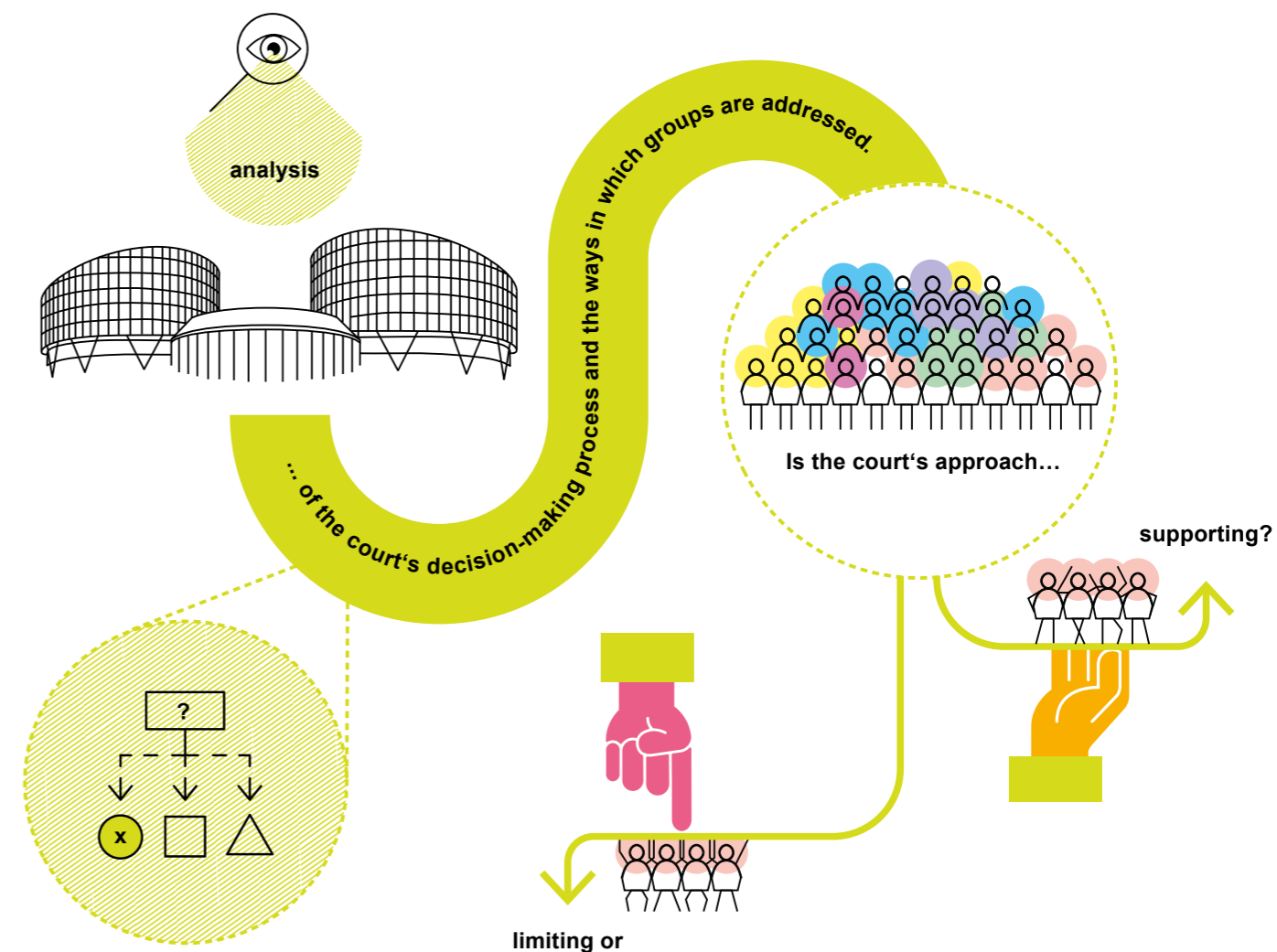
MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

Apart from the general challenges affecting academia, such as access to libraries, childcare and other relevant infrastructure as well as the significant changes in teaching, the impact of COVID-19 on the discipline of international law in particular seems to be less substantial than on other disciplines. Speaking from my own experience, relevant databases are available online and desk research is possible in a home office setting (provided the necessary infrastructure is in place). I have participated in one online workshop which shifted to this format due to COVID-19 and the setting worked well. Larger conferences, however, have been cancelled or postponed to next year. In terms of substantive research, COVID-19 has drawn new attention to the question of states of emergency and how they are regulated in international human rights law. This is a broader debate, which relates to the limitation of human rights during situations of crisis and how/for how long/which human rights can be legitimately restricted.

What makes a group?

Research on group or collective rights is mostly conducted on a theoretical level by outlining the general conditions for such rights to exist. Although these are crucial preconditions for any debate on group rights, some difficult questions in practice remain: How are such groups defined? Do they consist of ethnic or national minorities, people with disabilities, workers or a religious community? Or do they include all of them? Are such categorizations useful for the advancement of group rights based on collective interests? My research aims to find out which, if any, criteria the European Court of Human Rights refers to when categorizing a group or collectivity within its non-discrimination case law. I also investigate the extent to which additional denominators such as "vulnerable groups" affect the Court's decision-making process.

By analyzing the ways in which the European Court of Human Rights describes groups in its non-discrimination case law and whether this approach limits or supports rights held by groups, my study contributes a practical perspective to the current body of group rights research.





Gisela Kopp

Research Fellow since 03/2018
Department of Biology

The origin of Egyptian baboon mummies revealed by ancient DNA analysis

As part of their cultic activity, ancient Egyptians mummified many different kinds of animals. The number of animal mummies found in excavations surpasses the number of human mummies by several millions. Votive mummies dedicated to one of the Egyptian deities form the majority of animal mummies: Each god and goddess had at least one animal that was his or her totem. Baboons were associated with the god Thoth, god of wisdom and writing. Statues of Thoth closely resemble hamadryas baboons (*Papio hamadryas*) due to their sharply defined shoulder cape.

Baboon mummies have been found in large numbers at excavations in Tuna el-Gebel, North Saqqara and Thebes. The distribution of baboons as we observe it today does not include Egypt, and it is unclear if baboons ever naturally occurred there. It has been hypothesized that ancient Egyptians imported baboons from the land of Punt during the reign of Queen Hatshepsut. However, the location of Punt is heavily debated and one of the big mysteries in Egyptology.

Baboon mummies have mainly been investigated morphologically, but these data do not exhibit enough geographic variation to provide insights into the fine-scale origin of the individuals. Stable isotope analysis suggests that hamadryas baboons were imported from the region of eastern Somalia, Eritrea and Ethiopia. However, this method is not capable of pinpointing the geographic location of ori-

gin more precisely. The analysis of ancient DNA recovered from baboon mummies and compared to the current distribution of DNA diversity has the potential to provide much more detailed insights into the geographic origin of baboons in ancient Egypt.

In this study, we refine the map of genetic diversity of baboons in Northeastern Africa and strive to pinpoint exactly the geographic origin of baboons from ancient Egypt. We are using recently developed genetic techniques specialized in the analysis of ancient DNA from mummies.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

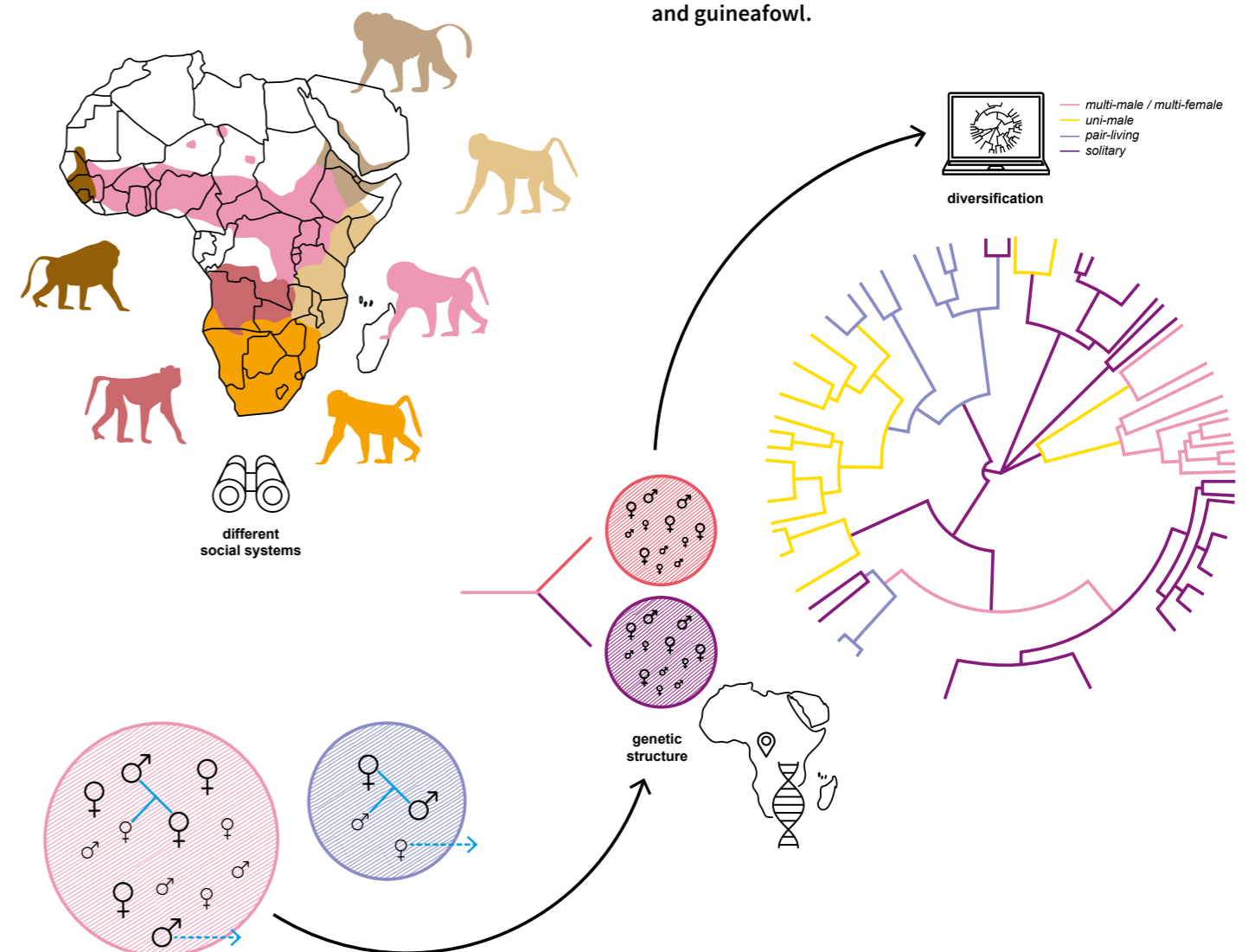
The COVID-19 pandemic has significantly impeded my research and that of colleagues. Biologists who rely on laboratory or field work have had to suspend many of their projects. While laboratories are now opening again, access to sample material from museum collections or the field can still be very restricted. Especially international fieldwork is still not possible and, particularly in the case of vulnerable animals such as primates, very much cautioned against. This halt of international field research activity is dramatic for two different reasons: First, long-term field studies rely on the continuous collection of data from wild animals and a discontinuation can ruin decades of work. Second, many long-term field projects make a tremendous contribution to advancing conservation of the regions and animals where they are conducted. We should be afraid that a long hiatus in these activities will have devastating long-term effects on these natural environments. More than ever, we need to invest in local capacity building to establish structures that guarantee the continuation of field projects. In summary, in the field of biology, the influence of the pandemic is extremely heterogeneous. On the one hand, it has stimulated a lot of research and many scientists have shifted the focus of their work to coronavirus-related studies. On the other hand, some researchers are watching their projects erode with little means against it.

Sociality and evolution

Why and how do closely related species create different societies and how do these behavioural traits influence evolutionary trajectories? While the role of ecology in genetic differentiation and speciation is well understood, the broader impacts of behavioural differences in diversification processes have been neglected. I am developing a framework to identify the factors and processes that link behavioural traits with genomic evolution and diversification processes.

The key questions are: I. Which data and analyses are needed to efficiently describe diverse social systems in a quantitative way? II. Do these descriptors consistently correlate with measures of genetic structure and diversity across taxa? III. Is genetic structure and diversity a predictor of diversification and species richness? IV. Do certain behavioural traits impact diversification patterns on a macroevolutionary scale?

To achieve this, I combine meta-analyses across a diverse set of animals with case studies, for which behavioural and genomic data are collected in wild populations, for example in baboons, bats, gazelles and guineafowl.



Claudius Kratochwil

Fellow since 09/2013
Department of Biology



How colour patterns form and evolve

Colouration is an important and fascinating feature in the biology of an organism. It plays key roles in several fundamental physiological, ecological and evolutionary processes. Currently, I am mostly interested in how these conspicuous phenotypes are generated at different levels of biological complexity. What genes cause variation in colour patterns? How do they control the production of pigments in the skin? And how do cells interact to form patterns as stripes or spots on the skin of fish? The colour of a tissue results from the multi-layered organization of pigment cell types with different structural and pigmentary properties. On a macroscopic scale, colour patterns arise from spatial differences in pigment cell properties and arrangements to form vertical bars, horizontal stripes, spots or more complex patterns.

In the last years, we have addressed how specific genes (Kratochwil et al., Science 2018) drive divergence in colour patterns. More recently, we obtained new insights into how colour patterns are formed on a cellular level and how these changes arise during development (Liang et al., Frontiers in Cell and Developmental Biology 2020). We could show that colour patterns are shaped by a quite dynamic control of the density of pigment cells, the synthesis of pigments as melanin and the control of the localization of pigment within cells. Such more mechanistic and integrative insights now give

us a much broader understanding of how colour patterns are generated and ultimately also evolve – the main question of my current German Research Foundation grant “An integrative approach to understanding the molecular mechanisms of colour pattern formation and evolution in cichlid fishes”.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

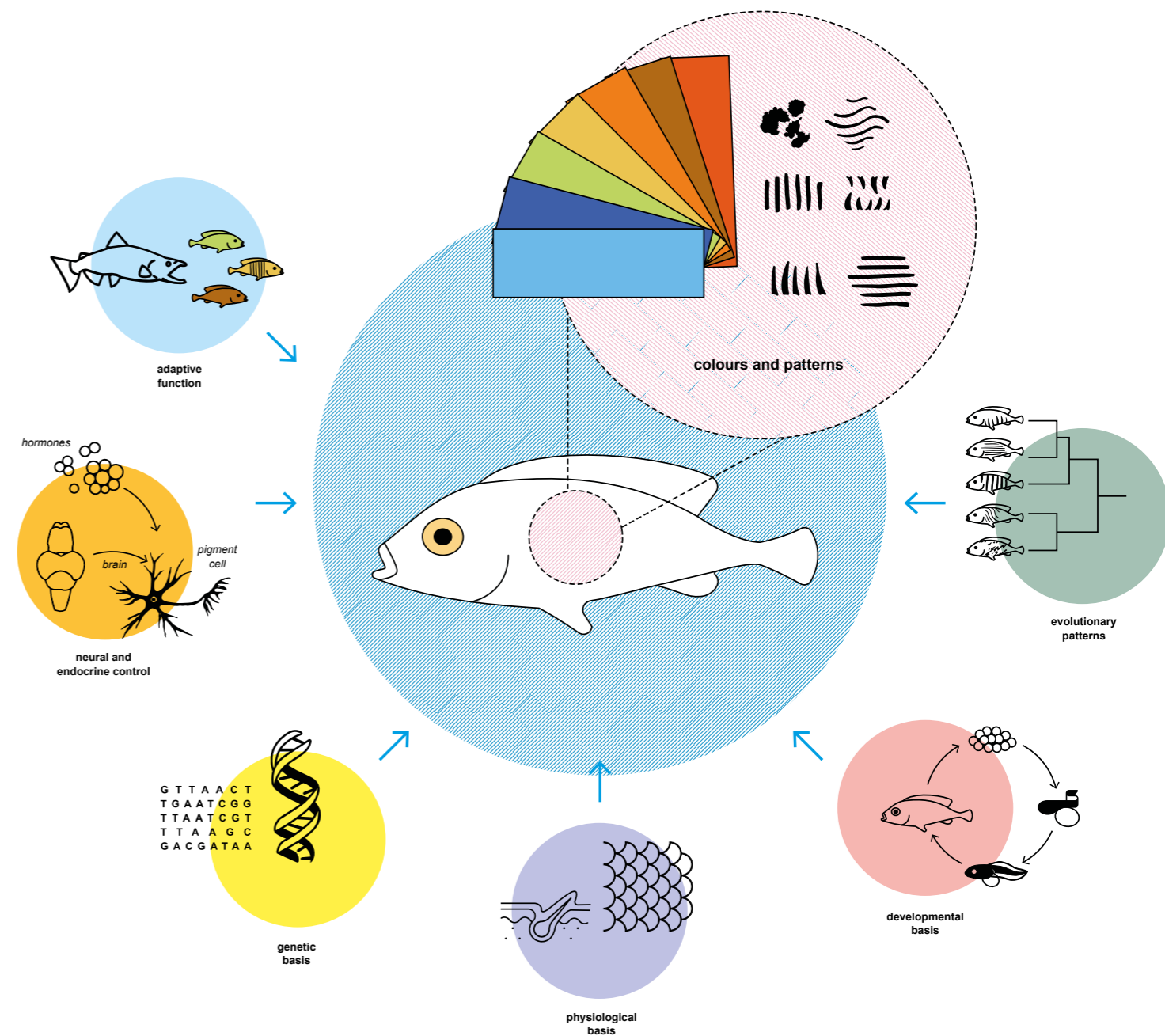
The COVID-19 pandemic has caused a probably unparalleled public interest in biology. Virologists and epidemiologists were not only present in every news bulletin and talk show, it also affected public opinion on basic research that might often have been regarded a luxury. Basic scientific knowledge that we had gathered in the last decades was crucially important for responding in an informed way to the challenges of the COVID-19 pandemic. At the same time, discussion among and contradiction between scientists also caused mistrust, particularly when opinions and statements differed and thus often led to changes in regulations over time. However, as Dr Anthony Fauci, key member of the White House Coronavirus Task Force nicely pointed out, “sometimes you have to make extrapolations because you’re in a position where you need to at least give some sort of recommendation”. To us as scientists, it seems evident that science is a process, that models and conclusions will change over time or even be fully rejected when more detailed information surfaces. There is hope that this crisis not only strengthens public interest in science but might also lead to more emphasis in communicating how the scientific process works. To this end, there is a lesson for us as scientists as well. The lesson is that we should do better in communicating that – although there is one scientific truth – the best we can obtain as scientists is a very good but still imperfect estimation of the reality. But the more we investigate, the better this approximation will be.

The genetics of colouration

Colouration is an important and fascinating feature in the biology of an organism. Animals use colouration and colour patterns for communication, recognition and camouflage. But how are such complex patterns as the stripes of a zebra, the spots on a butterfly wing or the iridescent colour of coral reef fishes generated?

In my work, I study a particularly diverse and colourful family of fish, the cichlids. We investigate how colour patterns in these tropical fish form during the development organisms.

We study what parts of the genetic code define colouration and colour patterns and we ask how changes in this genetic code result in the diversity of differences that we see between species.





Aleksandra Kukharenska

Fellow from 03/2015 until 12/2019
Department of Chemistry

Back-mapping based enhanced sampling: Coarse grained free energy landscapes as a guideline for atomistic exploration

Molecular dynamics simulations are extensively used to study the conformational ensemble of proteins. However, a major shortcoming of these simulations to this day is the discrepancy between computationally accessible and chemically or biologically relevant time and length scales. In our article, we contribute to solving the problem of accelerating the exploration of conformational spaces of peptides with classical molecular dynamics simulation by introducing a new back-mapping based sampling (BMBS) scheme. The proposed algorithm bridges three resolution levels (atomistic, coarse grained and low-dimensional projection) and takes advantage of all of them: Full resolution in atomistic scale, sampling speed in coarse grained (CG), easy interpretation, “navigation” and comparison possibilities in two dimensions. We used a dataset produced by a neural network-based approach for a radical coarse graining of oligopeptides. By applying the BMBS algorithm to these data we reintroduced the full atomistic resolution to a CG ensemble, accelerated the atomistic sampling and verified the neural network-based model. We showed that the BMBS is able to correct possible

flaws in the CG ensembles and is not limited by the quality of an underlying model. We present a way to quantitatively compare atomistic, CG and the respective back-mapped ensembles by using the earth mover’s distance as a metric.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

The coronavirus pandemic has not had any significant influence on working conditions in theoretical research. Most work had to be performed from home, which meant switching from the usual workstation (at the workplace) to a home laptop. As a consequence, more precautions were necessary in order to ensure secure data transfer and regular backups (which was previously done automatically at the workplace). Some large-scale computing facilities in Germany, which we are using to perform simulations, were hacked and out of operation for several weeks. I therefore think that more effort will be invested in the future in securing data and information.

The key discussion in the simulation community is whether or not to make all/most of the simulated data publicly available. During the coronavirus pandemic, a large group of computational biochemists pooled their efforts to study the coronavirus. The simulation data of this virus produced by the most powerful and state-of-the-art supercomputer (Anton II of D.E. Shaw Research) were immediately shared openly with the wider community. This, I think, will intensify the discussion and lead to changes in simulated data availability.

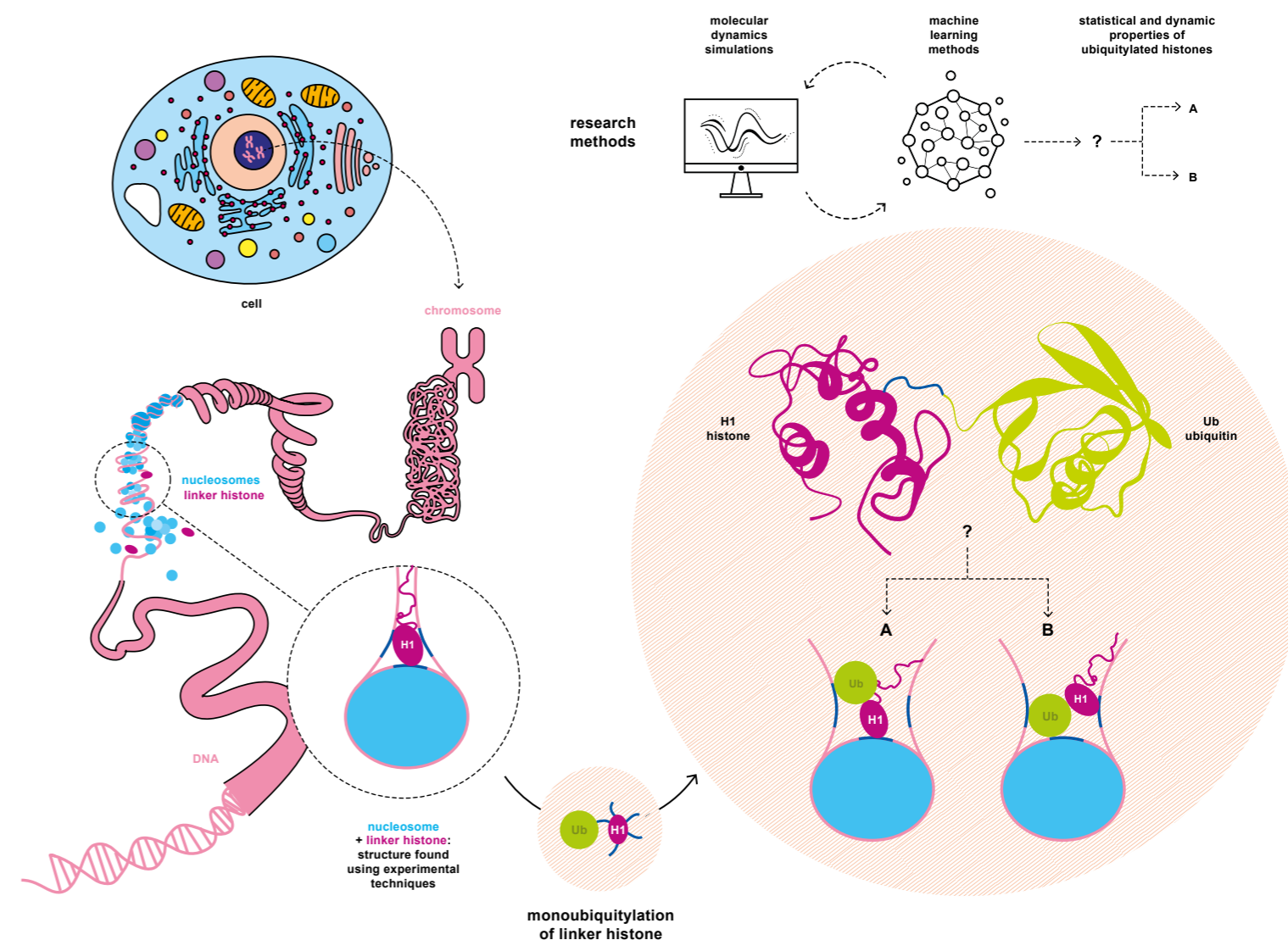
Quantitative analysis of linker histone ubiquitylation

In every cell, DNA is folded in an organized way, creating chromatin structures that form the chromosomes. The folding is coordinated by histones, large biological molecules. There are various ways to modify histones, for example, by attaching an ubiquitin molecule to them (monoubiquitylation).

My project focuses on the development and application of computational methods and mathematical tools to study the influence of monoubiquitylation on histones and subsequently on the ability of DNA to form chromatin structures.

I use classical molecular dynamics simulations with different resolution levels in combination with novel machine learning techniques to investigate changes in the ubiquitylated histones (Ub-H1).

Obtaining comprehensive kinetic and thermodynamic information is of fundamental importance to the interpretation of experimental data and the planning of future experiments. In addition, the theoretical methods developed and modified during this project will be used to investigate other multi-body systems.





Takayuki Kurihara

Research Fellow from 04/2018 until 02/2020
Department of Physics

Detecting spin noise dynamics

Noise in our daily lives is usually treated as an unwanted property that hinders signals. By contrast, when we speak about material science, the noises in a solid can even dominate the macroscopic properties of the material (such as magnetization in magnets). However, experimentally detecting such spin noise dynamics has been a challenge because the spin noise dynamics in magnets occurs on an ultrafast time scale to the order of a billionth of a second, which is far beyond the speed of conventional electronics.

At the Zukunftscolleg, I proposed a technique to achieve this goal using ultrafast laser technology. The principle relies on detecting the polarization noises contained in a pair of femtosecond laser pulses that transmits the sample. In 2019-2020, I finished characterization of the measurement system and tested our strategy using a sample crystal called orthoferrite. As a result, we succeeded in measuring the magnetization fluctuation dynamics during phase transition. To our knowledge, this is the first time that magnetization noise in a correlated spin system has been recorded in the time domain. Currently, we are preparing to publish this fascinating result in a paper together with my coworkers.

I left Konstanz in February because I was promoted to assistant professor at the University of Tokyo, Japan. However, I will continue to work closely with my colleagues in Konstanz, in the hope that

this will strengthen the network between the scientific community in Japan and Konstanz.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

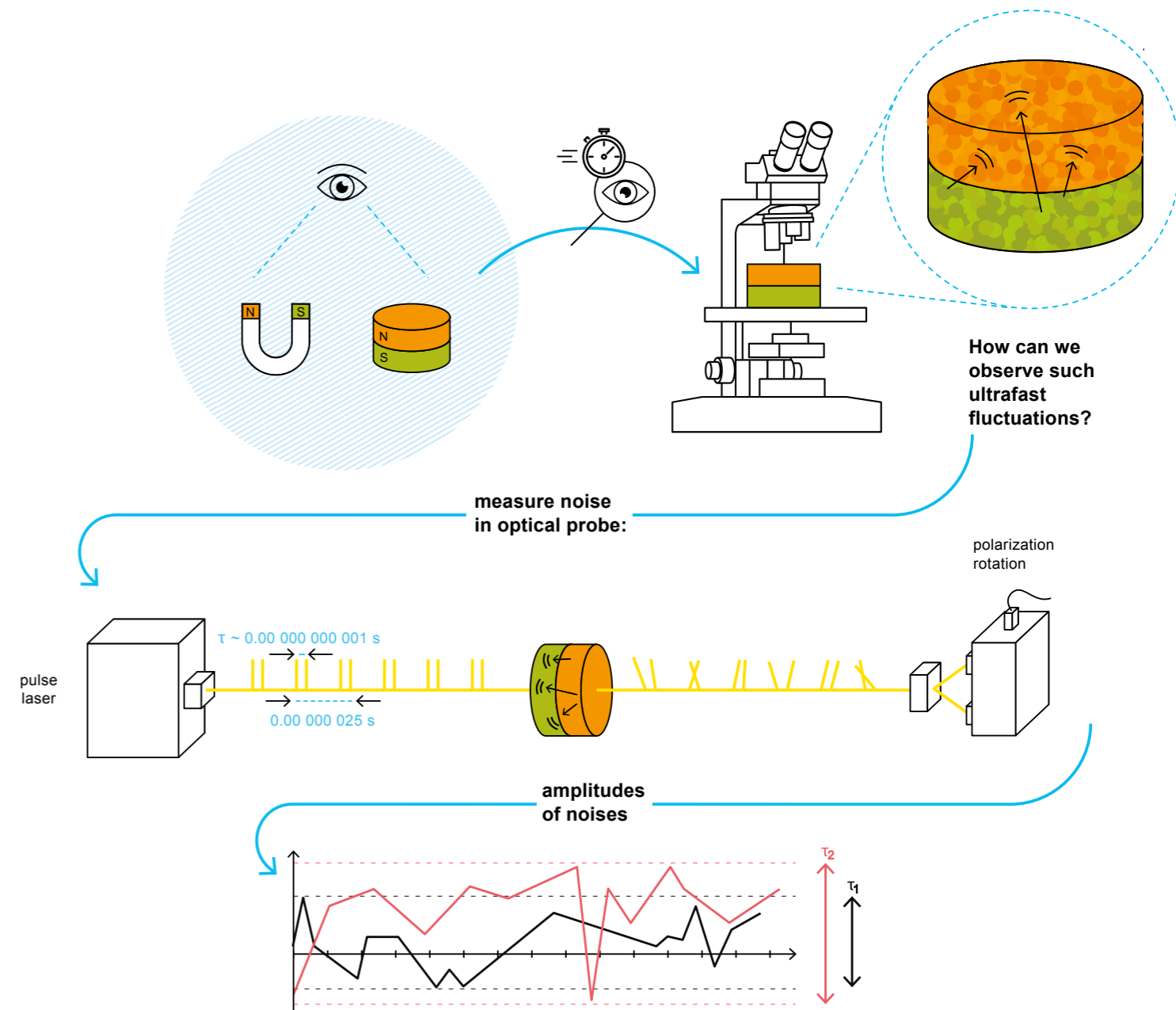
As the coronavirus pandemic influenced the whole of society, it was also critical for experimentalists like us because the laboratories were completely closed during the lockdown. In my field of ultrafast laser sciences, the time schedule of our daily routine is usually not limited too much by the experiment because the materials and equipment we use have relatively long-term stability compared to other research areas, such as biology. Even so, once the inertia of the experiment is killed, it takes a while to bring an experiment back to full throttle. The first lockdown in Japan lifted around the beginning of June and while transport, such as delivery of purchased devices and cross-border travel, is still restricted, we are at last slowly returning to normality, at least in the laboratory. However, our research plan has been delayed by several months to even a year. In addition, from the viewpoint of educational systems, tremendous confusion continues, such as how to shift the traditional style of lectures and entrance examinations to online mode. At the same time, although restricted on-site communication is obviously a disadvantage, the transition to an online community has also had several advantages as far as my immediate environment is concerned. For example, keeping in touch with Konstanz is now much easier for me because all events which would have required physical attendance are now online. As another example, I joined several virtual conferences and found that some of them had a system where – in the Q&A session after the talk – a member of the audience with a question can simply write a comment and submit the message directly to the speaker. This way, questions from all participants are accepted on an equal basis and the speaker can easily get in touch with them later, without worrying about time limits. I find this much more interactive and useful than the traditional approach. I hope that as time goes on more and more innovative technology (AR, VR, etc.) will come into use that enables much smoother online meetings that potentially even prevail over physical meetings, as shown in the examples above.

Listening to ultrafast noises in magnets

Properties of solid materials that we see in our daily lives – shape of stones, colour of metals, strength of magnets – look very still and changeless to our eyes. However, that is not exactly true from a microscopic perspective. Due to thermal and quantum dynamics, everything in the world is ceaselessly fluctuating. This is very important for the occurrence of many exciting phenomena in nature, such as in phase transition (water turning into ice, iron becoming magnetized, etc.). Is it possible to observe such microscopic fluctuations?

I am working to develop a unique experimental technique that would enable such experiments by using light, targeting magnets. By using a laser pulse that has very short time duration as a strobe, we can record fluctuations in magnetization by carefully measuring the noise pattern contained in the polarization of the optical pulse.

Ultimately, we can reveal quantum mechanical features of magnetism in femtosecond timescales.





Morgane Nouvian

Research Fellow since 04/2019
Department of Biology

Back to basics: The alarm pheromone of honeybees

Honeybees defend their nests against large predators through mass stinging. The aim of my project is to understand how individual bees coordinate their actions to produce this efficient defence, both at the behavioural and the neurobiological level. During this first year of the project, I dedicated considerable time to refining our understanding of the central role played by the alarm pheromone. With the help of highly dedicated students, I first described its quantitative action. This had not been done before and was a necessary step in order to build comprehensive models of the stinging behaviour. I used this information to better understand both the dynamics of this collective defence, in collaboration with computer scientists at the University of Konstanz, and its evolution, in an interdisciplinary project with colleagues from Konstanz and Vienna. In addition, I was interested in replacing the alarm pheromone in the broader context of the colony, in which bees of different ages perform different tasks. We addressed this question by testing bees of known age in a novel aggression assay, and we found unexpected differences in alarm pheromone responsiveness. These differences are likely

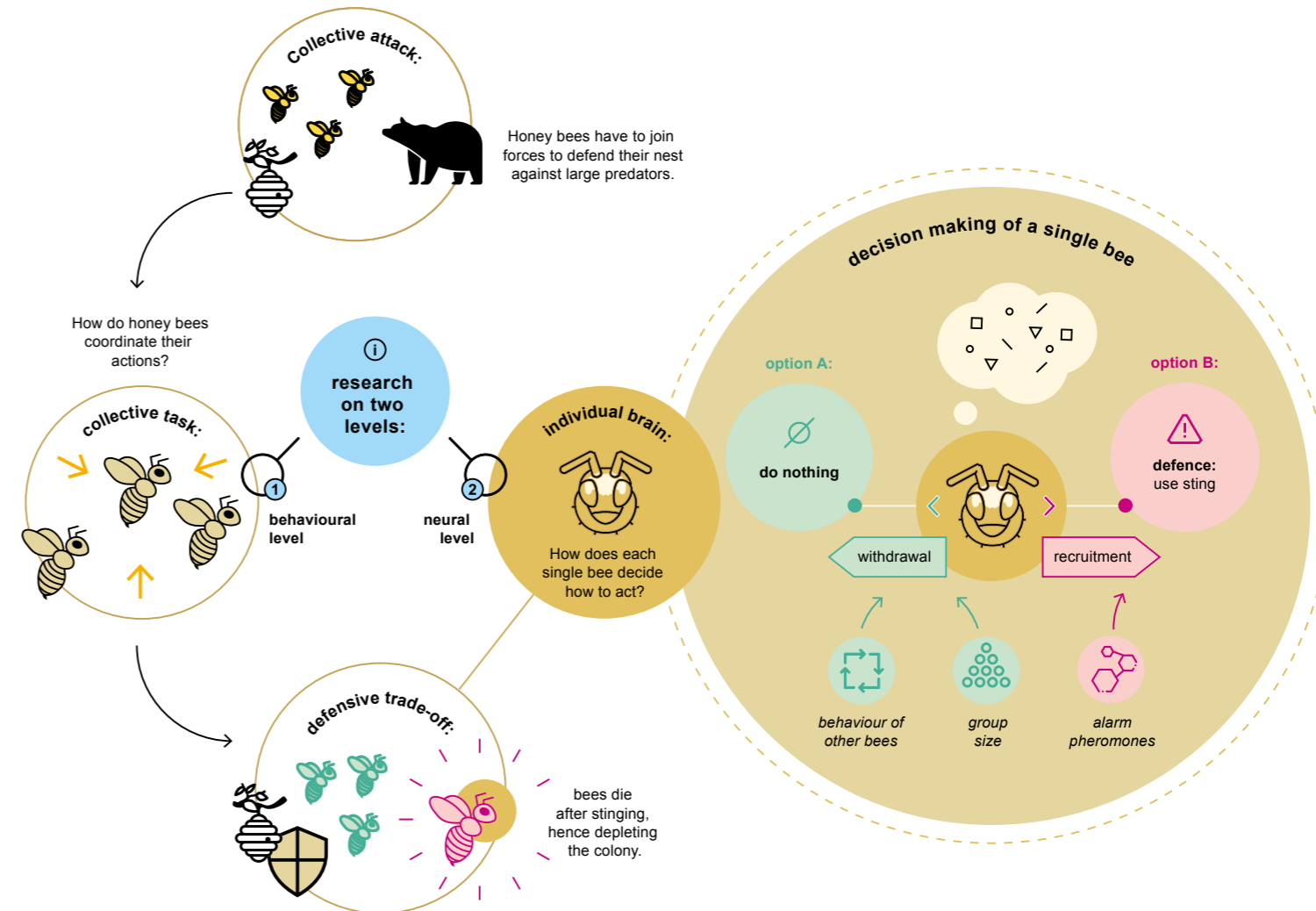
very important in shaping this collective response. In summary, I spent this year revisiting what I thought of as “established facts”... and ended up challenging them! This is why I will never get bored of science.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

This year has obviously been marked by the coronavirus pandemic. In the field of biology, some scientists took the opportunity to increase public awareness about the importance of sustained funding and fundamental research. They argued that we could have been better prepared if we had known more about coronaviruses and viruses in general. I would like to believe that this will trigger some changes (but I doubt it). I also found extremely revealing the fact that the number of publications from women crashed during the lockdown, while those from men increased. I hope that in ten years continuous work to reduce gender bias in academia and in our homes will improve this situation.

Individual brains, collective task: Social regulation of stinging behaviour in honeybees

A vast amount of resources is concentrated within a bee nest, from the pollen and honey to the brood. Because of this, bees have to defend their colony against many predators, some of them a million times bigger than the bees themselves. To deter such enemies, honeybees have to join forces in a collective attack, during which they make use of their painful sting. However, in doing so, the bees give their lives. The aim of my project is to study this interesting paradox: How do honeybees coordinate their actions to achieve an efficient defence of the nest without sacrificing too many individuals? I would like to answer this question at the behavioural level, as well as at the neural level. Thus, my second question is: How is the decision whether to contribute to nest defence taken within the brain of each bee?





Jennifer Randerath

Research Fellow since 07/2015
Department of Psychology

From fundamental research to clinical applications

It is fairly known that language and motor functions are often affected by brain damage, e.g. as the result of a stroke. However, motor-cognitive impairments which affect the planning of daily routine are often not detected immediately, and their effects on patients remain underestimated. In the past five years, we managed to transfer diagnostic and therapeutic tools developed in our laboratory at the University of Konstanz's Zukunftscolleg into the neurorehabilitation context of local clinics. This work received the annual Transfer Award at the Dies academicus ceremony on 18 October 2019 at the University of Konstanz.

We aim to build on this success with our new pilot project on Cognitive Behavioural Neuro-Psychotherapy for Patients with neurological disorders, for whom there is unfortunately a clear shortage of behavioural psychotherapists with neuropsychological expertise in treating neurologic outpatients. The plan is to create a local, integrated and specialized ambulatory treatment setting for patients with neurological disorders by connecting knowledge about neuro-psychotherapy between university (University of Konstanz), clinic (Kliniken Schmieder Konstanz) and a cognitive behaviour-oriented training facility for psychotherapy (apb) to students and psychotherapists (in training). Our intersectoral cooperative impulse project with the apb and the Kliniken Schmieder is

again supported by the Zukunftscolleg. Thank you, Zukunftscolleg!

In addition, we received funding from the German Research Foundation for our planned three-year fundamental research project with the title "To do or not to do: Principles of affordance-based decision-making".

In the 2019 summer semester, I was the happy winner of the first "Zukunftscolleg Video Award", which was part of the Zukunftscolleg's network activities with its 23 sister institutions in Europe (NetIAS), and initiated on the occasion of the European Researchers' Night on 27 September 2019.

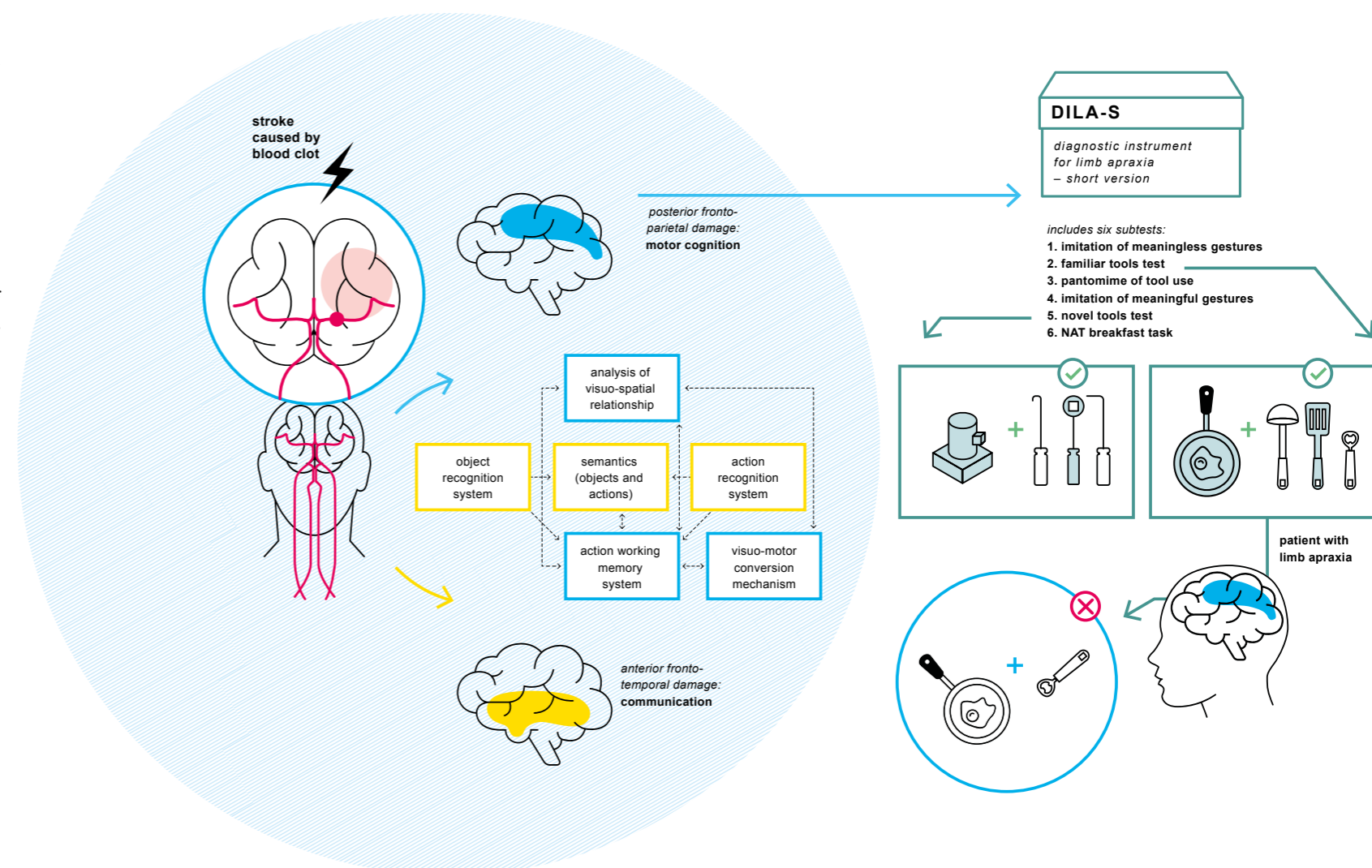
Motor cognition: Behavioural and neural principles as well as clinical implications

The central aspect in our research is motor cognition: How we select, plan and produce movements and actions, especially when these involve tools or objects. Our ageing society and ageing-related diseases such as stroke confront us with the challenge of diagnosing and rehabilitating the resulting deficient behaviours.

We develop diagnostic and therapeutic approaches, and we aim to contribute to a better understanding of the underlying mechanisms of motor-cognitive abilities.

Major questions our group addresses are: How do we manage to skilfully use tools (project: Limb Apraxia)? How do we decide whether a cup of coffee is reachable (project: Affordance Perception)? How do we plan simple actions efficiently (project: Alternate Routes)? And what regions in the brain are essential for these daily functions?

We link pragmatic clinical needs inspired by our collaborative work with local clinics (i.e. Kliniken Schmieder) with fundamental theoretical questions developed in the laboratory context at the university (i.e. Zukunftscolleg, Department of Psychology), an approach which capitalizes on valuable synergies.



Gianluca Rastelli

Fellow since 04/2015
Department of Physics



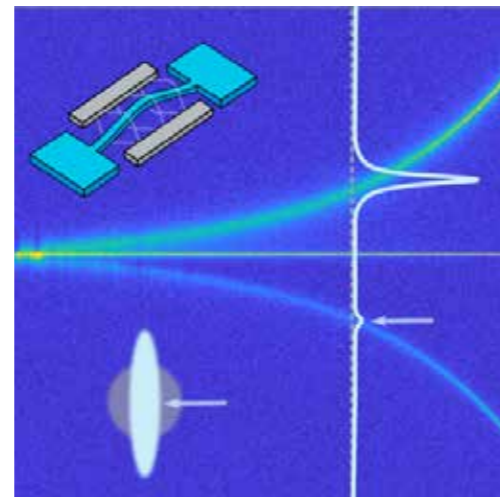
A new technique for detecting squeezing

Fluctuations are omnipresent in nature, limiting the resolution of quantum as well as classical signals. The technique employed to increase the resolution of oscillating signals, laser radiation being an example, is squeezing fluctuations in one of the components of the signal and then using this component for applications. Detecting and characterizing squeezed fluctuations is therefore of broad interest. In this work, we demonstrate a conceptually new and radically simple technique to probe squeezed fluctuations.

So far, squeezing has been conventionally quantified in phase-sensitive measurements tracking the fluctuations in phase space. By contrast, we characterize the squeezed state through a single spectral measurement. To this end, we employ a nanomechanical resonator of extremely high quality, operated in the classical regime. The measured power spectrum exhibits two clearly resolved satellite peaks around the drive frequency. Theoretical analysis shows that the peaks' heights encode the squeezing parameter, which can hence be directly extracted from the power spectrum. The concept is generic and not limited to the presented case of a classical resonator but fully applies in the quantum regime as well. It thus should further extend its important applications,

including high-resolution sensing and signal processing.

This work was realized in collaboration with Professor Mark Dykman (Michigan State University), senior fellow of the Zukunftskolleg since June 2018, and with the experimental team of Professor Eva Weig (University of Konstanz).

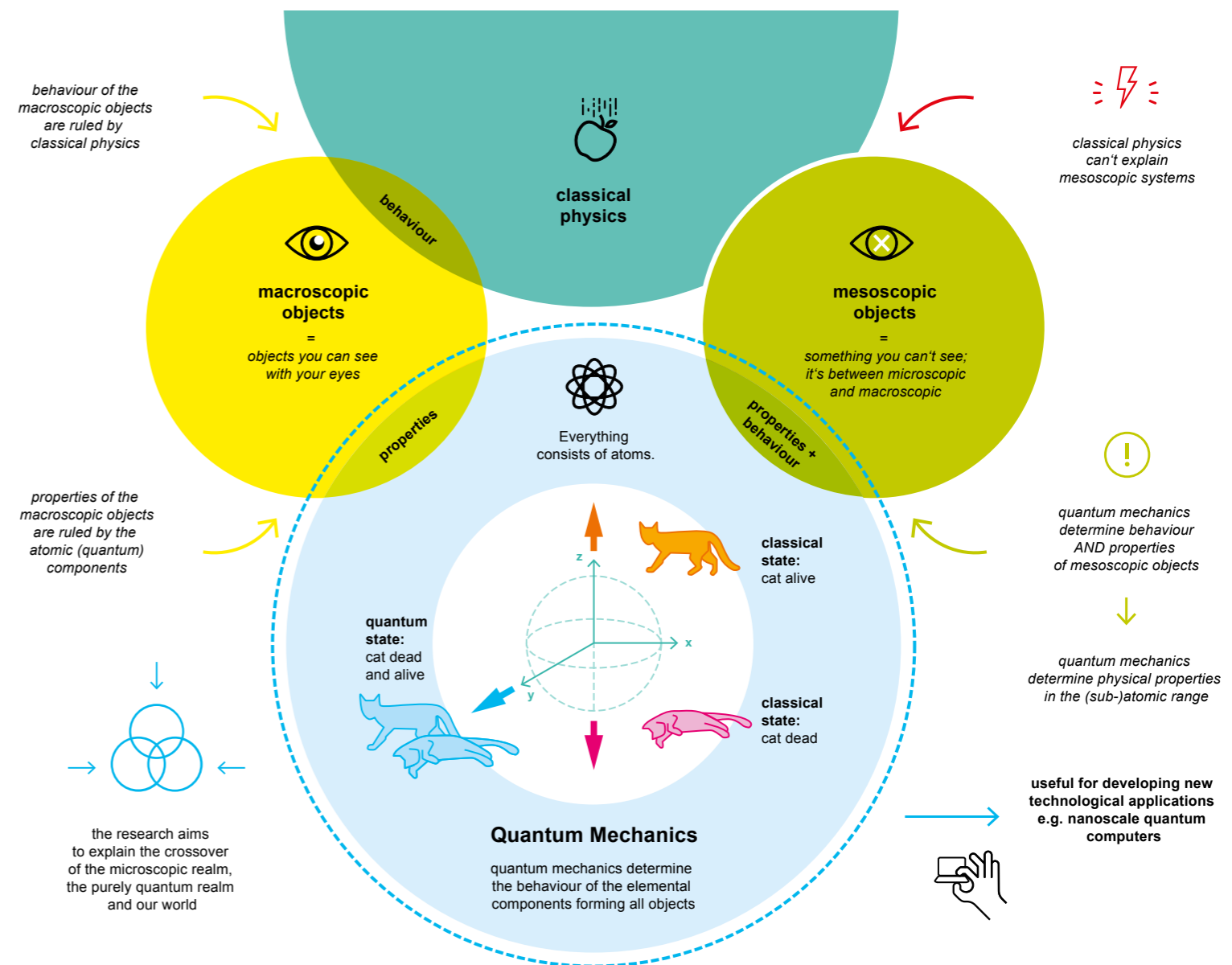


Spectral evidence of squeezing of a weakly damped driven nanomechanical mode
Physics Review X 10, 021066 (2020); J. S. Huber, G. Rastelli, M. J. Seitner, J. Kölbl, W. Belzig, M. I. Dykman, E.M. Weig

Theory of engineered quantum systems

Quantum theory told us almost a hundred years ago that matter as well as light have a particle and a wave-like character. This wave-particle duality leads to a strange quantum world in which atoms and light fields can exist in superposition states, suspended, so to speak, between different classical realities. This situation is impossible to comprehend intuitively for us if we look at macroscopic objects. However, nowadays there is a host of mesoscopic devices that reveal quantum mechanical properties.

I investigate strategies for creating, detecting and eventually controlling quantum states in engineered coherent systems. My aim is to reach a theoretical understanding of the interplay between quantum coherence, interactions and non-linearity in quantum mesoscopic systems.





Philip Rathgeb

Postdoctoral Fellow from 02/2018 until 01/2020, since then: Associated Fellow
Department of Politics and Public Administration

Scotland calling

My greatest success in the past year has been to secure a permanent post as Lecturer/Assistant Professor in Social Policy at the University of Edinburgh. I am extremely happy about this, as the academic job market for postdoctoral researchers has become even more strained in the wake of the COVID-19 pandemic.

This would not have been possible without the endless support of the Zukunftscolleg, so I am very thankful for having had the privilege to pursue my career at this wonderful institution. And I am very happy to be remaining an Associated Fellow in the forthcoming year. In terms of research, my biggest successes have been to:

- Secure a Special Issue on the relationship between radical right parties and the welfare state
- Publish a case study on the Freedom Party of Austria's role in socio-economic politics
- Publish the last piece of my doctoral research on the role of the Eurozone in shaping the power resources of trade unions

My old doctoral project has therefore come to a conclusion, while my new project has started off with a new publication and the acceptance of a Special Issue proposal by a prestigious political science journal (West European Politics).

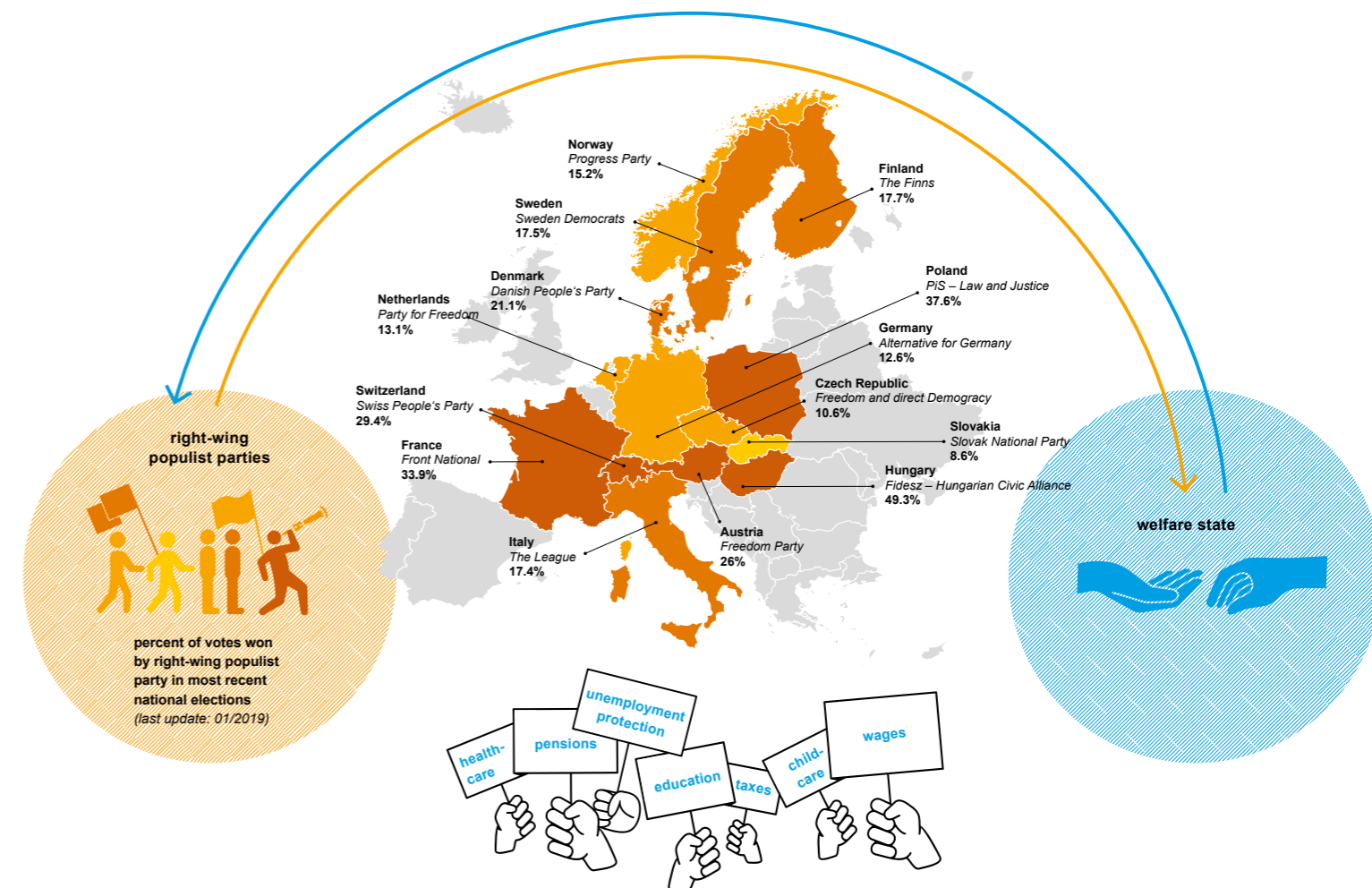
MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

Being a political scientist, I am sure the pandemic will shape both political and economic conflicts in the near future – and thus have an influence on our research agenda too. I would wish political science research to be particularly attentive to the question of how the fiscal costs of this crisis will be shared in society (who pays and who does not?). While it is currently often said that ‘everything’ will change in response to the COVID-19 crisis, for the time being I actually see more continuity than change: Rising public and private debt, growing social inequality (especially between working people in ‘essential’ versus ‘non-essential’ services/industries) and the enhanced importance of unelected central banks in managing capitalism. If there is anything that has so far changed for the better, it is that the lockdowns obliged us to reduce our greenhouse gas emissions. I hope the pandemic will create opportunities to pursue a more environmentally sustainable way of running our economy beyond the lockdown restrictions.

The social policy impact of the radical right in Europe

The rise of populist radical right parties (PRRPs) can be witnessed across most European democracies. Political scientists have many explanations for the causes of this political development, but we still know very little about its consequences for the welfare state, although it comprises the largest part of public spending.

This is what my current research project studies (2019–2022). My principal objective is to identify and explain how European PRRPs influence the welfare state when they are in government, i.e. their social policy impact.



Cristina Ruiz Agudo

Research Fellow since 06/2020
Department of Chemistry



Controlling M-S-H crystallization for building a green future

A key feature of the past academic year was my application for a Five-year Research Fellowship at the Zukunftskolleg within the 14th call for applications. Luckily, in June 2020 I finally became a Zukunftskolleg fellow. My project at the Zukunftskolleg focuses on understanding the crystallization of alternative cements to common Portland cement, with the aim of developing competitive binder materials with a lower CO₂ footprint. The cement industry is one of the major producers of carbon dioxide (CO₂) and is responsible for up to 8% of global man-made emissions of this gas. The CO₂ emissions associated to concrete are proportional to the cement content present in the concrete mix. Thus, the reduction of the Portland cement used in concrete by more environmentally friendly binders will result in a reduction in CO₂ emissions. The partial or total replacement of Portland cement by alternative binders such as magnesium silicate hydrate (M-S-H) will contribute to reduce CO₂ emissions by lowering the energy consumption associated with cement manufacturing. Nevertheless, the investigations of M-S-H cement paste evidence important hindrances that need to be tackled to develop a competitive binding material. The overall aim of this project is to obtain insights into

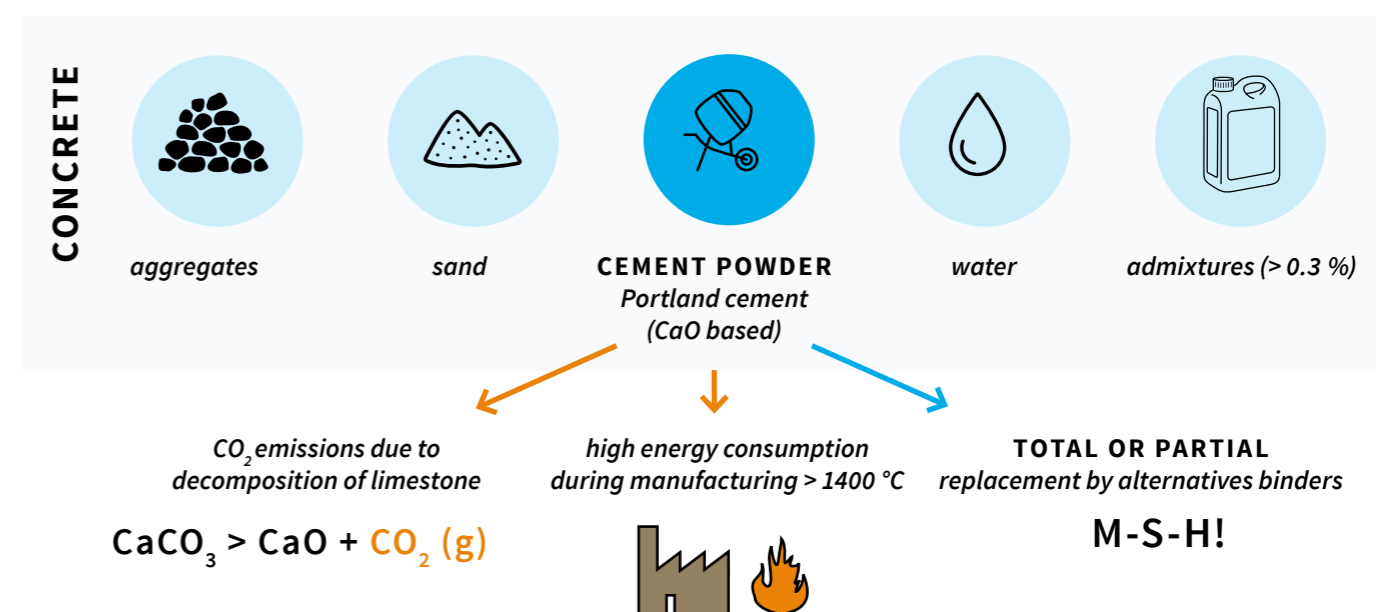
the crystallization of M-S-H and exert control over it by using designed polymeric additives. Understanding nucleation and growth of M-S-H will pave the way towards the development of a competitive binder that could emulate Portland cement.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

In general, as experimental scientists we all immediately felt the impact of the coronavirus pandemic through the sudden interruption of our research activities in March 2020 and the ongoing restrictions regarding occupancy of the laboratories. In my research, I focus on additive-influenced crystallization of construction-related materials for developing cements with a lower CO₂ footprint. The lockdown meant significant CO₂ reductions during the first four months of 2020. Daily global CO₂ emissions decreased by approximately 17% by early April 2020 compared with April 2019 levels. The largest emission reductions in absolute numbers are related to the ground transport sector and the electric power associated mainly with industry. From my point of view, this will have important consequences, since the huge impact that a considerable reduction of industrial activities and ground transport over a relatively short period of time has on global CO₂ emissions has been demonstrated. Now, governments should take the lead and increase their efforts in the direction of greater sustainability by adapting industrial processes (e.g. cement production) and materials (e.g. cement) to the (hopefully) more environmentally friendly post-COVID-19 era.

Designed organic additives to tailor M-S-H nanostructure

Cement industry emissions represent as much as 8% of global CO₂ emissions, and as a consequence the International Energy Agency has proposed some strategies aimed at reducing them by 24% by 2050. However, this is not an easy target and would require the full cooperation of all the parties involved (i.e. manufacturers, scientists, users, society and governments). The development of eco-sustainable cements has been a top priority during the last decades for the international scientific community. In this context, magnesium silicate hydrate binders ((MgO)_x-SiO₂-(H₂O)_y, M-S-H) have attracted considerable attention due to their analogy to calcium silicate hydrate ((CaO)_x-SiO₂-(H₂O)_y, CS-H), which is the binding phase in Portland cement (PC). MgO-based cements are produced by hydration of MgO in the presence of silica to generate M-S-H. MgO can be produced by burning Mg-silicates or Mg-carbonates at considerably lower temperatures than CaO. This would substantially reduce CO₂ emissions compared with PC. Nevertheless, studies of M-S-H cement pastes evidence significant disadvantages compared with PC (e.g. high water demand, long setting times and low compressive strengths). It has been suggested that the different mechanical behaviour results from the differences in their nanostructure. In this regard, developing organic additives with specific interactions with M-S-H particles could be a way to tune the nanostructure of M-S-H binders and/or reduce the high water demand by stabilizing the particles against aggregation. We envisage that the fundamental problems of M-S-H described above could be solved by designing additives with specific interactions with M-S-H particles. Valuable insights regarding M-S-H crystallization and how the additives designed affect this process could certainly be used to tailor its nanostructure and enhance its fundamental properties.



Ariana Strandburg-Peshkin

Research Fellow since 03/2019
Department of Biology

How do social networks affect group decisions?

Imagine you and a group of friends are going out to eat. Some people want sushi, whereas others are in the mood for burritos. To stay together, your group has to come to a consensus on a collective decision, choosing one option even though not everyone agrees.

Although this is a trivial example, collective decision-making processes – and social influences on decision-making more broadly – are all around us. From the flocking behaviour of animal groups that coordinate where to move, to decision-making in our own societies: What brands we buy, whom we vote for, whether we choose to wear a mask. Yet often we do not communicate directly with everyone in our groups but instead only interact with a few communication partners. Together these ties form a communication network – how does this network affect our decisions?

In March 2019, Helge Giese (social psychology) and I (biology) teamed up to study how the structure of communication networks affects the dynamics and outcomes of collective decision-making. Through an Interdisciplinary Collaborative Research Grant from the ZukunftsKolleg, we developed an online study in which groups of people embedded in virtual networks play a “coordination game” to test how different networks affect decision-making. We have now acquired a grant

from the Centre for the Advanced Study of Collective Behaviour to continue our work on this topic over the next three years.

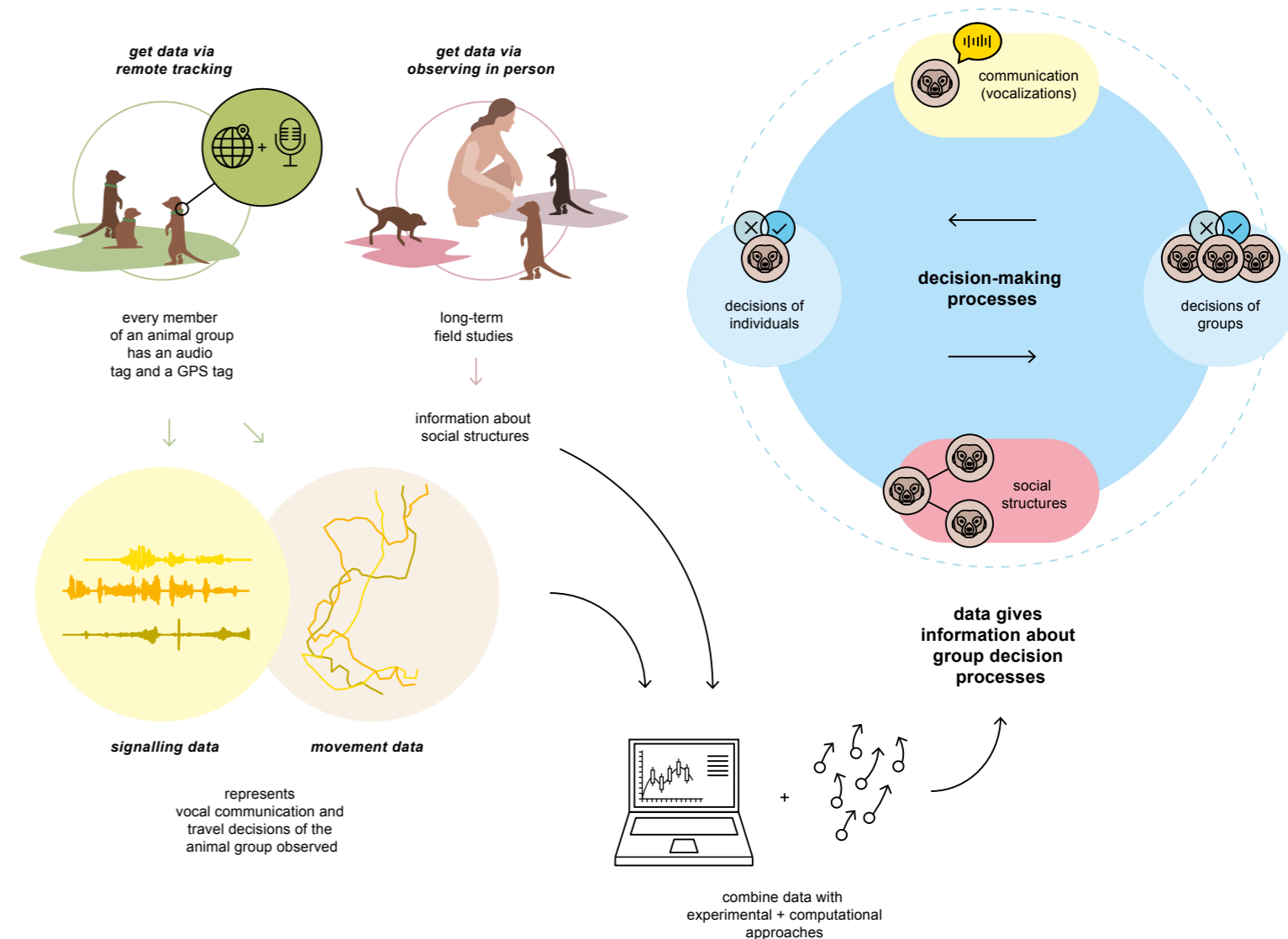
MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

The effects of the pandemic have been felt strongly by many behavioural field biologists. Due to the often highly seasonal nature of field work, many researchers have had their field seasons delayed by at least a year. In addition, many long-term studies draw their power from the continuous collection of data on a particular study population over the course of many years. The interruption in field work will leave gaps in data records for many long-term studies, which may greatly hinder the scientific value of entire, multi-year or even multi-decade datasets. The pandemic is already leading to shifts in the way field studies are carried out, with some negative but also some potentially positive effects. While the interruptions in field work in the short term may leave many field assistants and other employees at field sites out of a job, in the longer run studies that have typically relied on flying in foreign researchers to collect data may increasingly need to collaborate with local researchers and employ local field assistants more than was previously the case, with the potential to improve local capacity in the countries where field work is carried out. It may also no longer be feasible for field researchers to fly out to their field sites for short stays of only a few weeks, potentially resulting in fewer but longer field seasons and/or a shift in research topics to focus more on species in the local area.



How do groups make decisions?

How do groups come to consensus on collective decisions, such as where to travel? In social groups where members interact repeatedly with one another, these decisions are often strongly affected by the social relationships among group members and the ways in which they communicate with one another. I study how such social structures and communication shape group decision-making processes across multiple species of social mammals, including meerkats, coatis and spotted hyenas. In particular, I am interested in how these collective decisions are mediated by vocal communication. My collaborators and I use GPS and audio tags to get a detailed picture of where all group members go and what vocalizations they produce as they are interacting. We then combine these data with experimental and computational approaches to explore how communication and social relationships affect the decisions individuals make and, ultimately, how these decisions scale up to determine the outcomes of collective decisions for entire social groups.



Stephan Streuber

Research Fellow since 06/2019
Department of Computer and
Information Science



Virtual reality for balance control research

One of my favourite projects conducted at the Zukunftskolleg in 2019/20 is a collaborative research project with Dr Assländer from the Department of Sports Science. In this project, we use virtual reality to investigate the contribution of vision to balance control in humans. Balance is important for performing everyday activities such as walking, standing or sports. Age and various pathologies, such as Parkinson's disease or a stroke, can make balance control deteriorate, leading to increased risk of falls and injury. Studying balance control is important for understanding its underlying mechanisms and in order to develop new interventions. In this project, we have developed a novel experimental paradigm that allows the study of balance control in a natural context. For this purpose, we built a tilt platform with which we can perturb and measure balance control while participants are immersed in a virtual environment. We conducted several experiments where we could investigate balance control mechanisms. Furthermore, we could show that virtual reality is an ideal tool for balance studies. This project is funded through the Zukunftskolleg's Interdisciplinary Collaborative Projects Programme.

MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

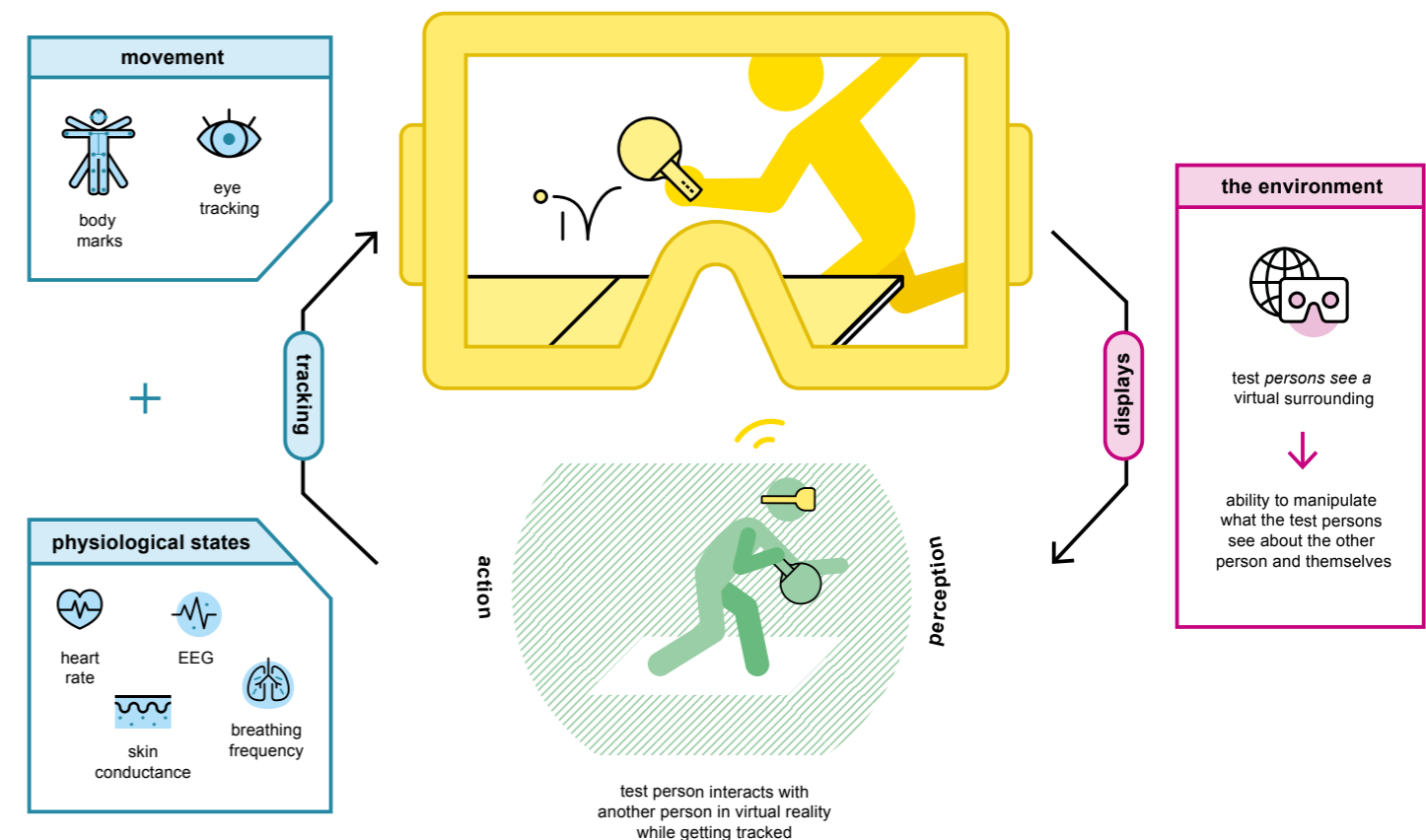
This academic year has brought significant challenges and opportunities for all areas of society. In particular, the field of computer science/informatics has been challenged and yet, at the same time, the discipline has moved forward because of the pandemic. Over the last decades, computer science has developed a portfolio of tools for online work and online research. Before the pandemic, some of these methods were partially used on a regular basis by computer scientists and scholars in other fields (for example, Amazon Mechanical Turk for online experiments). However, the pandemic has put these tools to the test and created awareness about our capability for online working. In the next ten years, working from home will be normal – and perhaps the norm – for computer scientists in both academia and industry. Conferences will mostly be held online, and excessive travel will be discouraged. We will see a boom in digitalization, industry 4.0 and internet connectivity in Germany and worldwide.

Using virtual reality to understand social interaction

Humans are social beings, and they coordinate their own actions with others all the time, for instance when dancing salsa, carrying a sofa together, handing over a cup of coffee to another person or playing table tennis. All these joint activities require an enormous amount of interpersonal coordination.

How do humans accomplish this remarkable feat? And how can we study these everyday social interactions in the laboratory? In order to tackle both questions, we develop novel virtual reality paradigms which allow us to study real-life social interactions under close-to-natural and controlled experimental conditions. We immerse pairs or groups of people in computer-generated synthetic worlds and ask them to perform everyday social interactions such as playing table tennis or carrying an object together. Virtual reality allows us to precisely manipulate what each person sees about the other person and about themselves. This allows us, for example, to investigate how visual information affects behaviour in social interactions. Virtual reality also enables us to investigate other factors relevant for social interactions such as body perception, social bias, stereotypes and affective states.

How does visual information affect social interaction?





Elena Sturm (née Rosseeva)

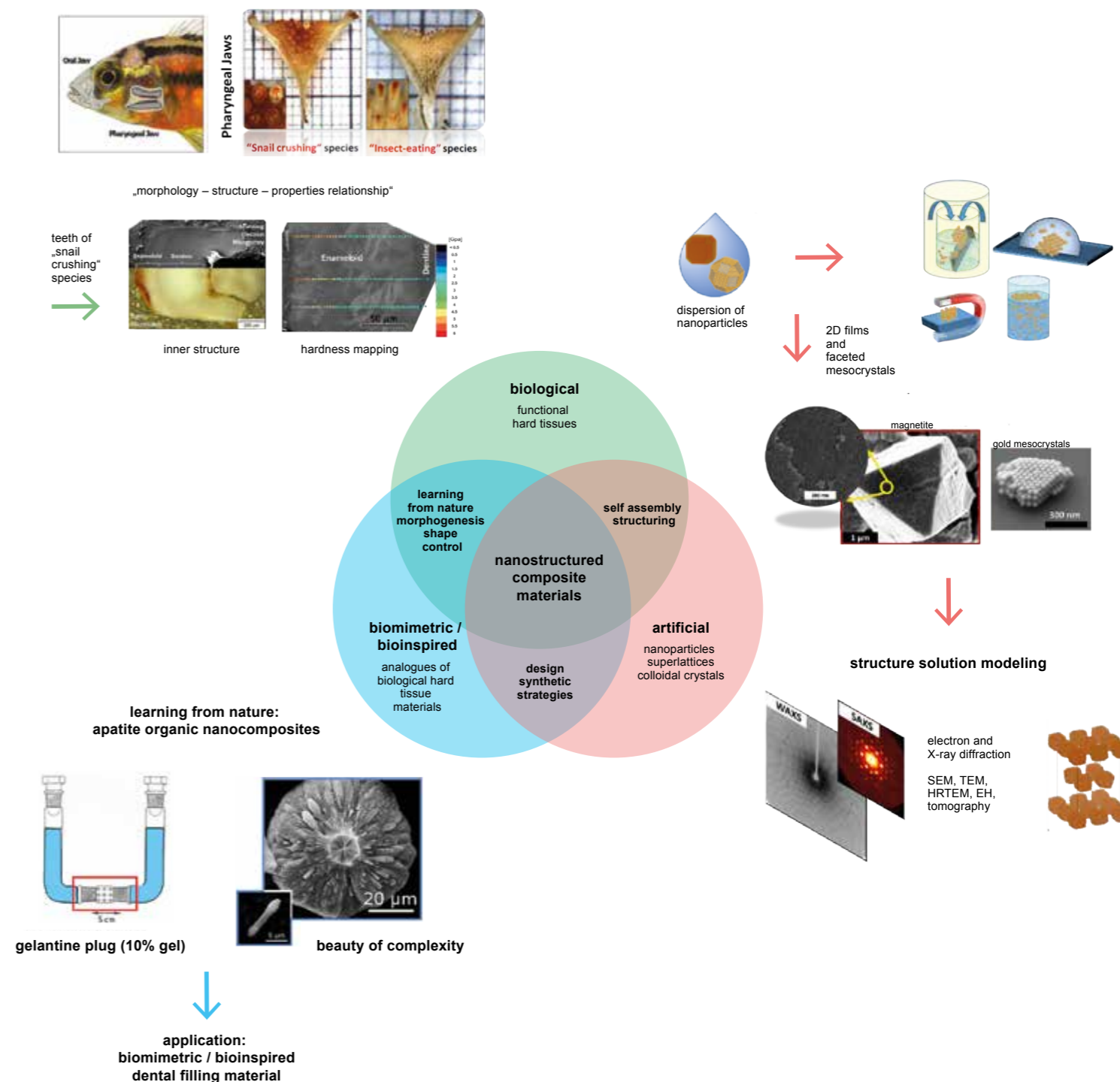
Fellow since 03/2013
Department of Chemistry

Learning from nature: How can we develop strong teeth?

The basic driving force of my research is to gain a deeper insight into the fundamental principles of the structuring, organization and formation of nanocomposite materials from the self-assembly of nanoparticles to biological and biomimetic/bioinspired systems in order to understand how these complex and unique systems form and function. My research topics are usually very interdisciplinary and therefore naturally include extensive collaboration with researchers in the fields of chemistry, physics and biology. One of the interdisciplinary projects, which was born directly at the Zukunftskolleg, is focused on cracking the structural and genetic basis of tooth biomineralization in snail-crushing cichlid fishes. Together with Claudius Kratochwil from the Department of Biology, we study a complex structure of teeth in “snail-crushing” cichlid fishes that have been found to be highly mechanically durable and can fracture resistant materials. This knowledge could inspire the development of new approaches for biomimetic design of new materials, especially for biomedical application. To report on this research, I was also invited as a keynote speaker to the 15th International Symposium on Biomineralization (BIOMINXV) in Munich (9-13 September 2019). This

was a great opportunity to present and discuss the many recent advances and open questions in the field of biomineralization. Within this symposium, I was also interviewed by Hellmuth Nordwig of the “Deutschlandfunk” broadcasting service.

Self-assemblies of nanoparticles, biological and bioinspired materials



Nihan Toprakkiran

Postdoctoral Fellow since 04/2019
Department of Politics and
Public Administration



Survey in progress

My current research project at the Zukunftskolleg aims to analyze the views of people in Germany with a Turkish, Polish or Italian migration background about the politics of their countries of origin on the basis of an original survey. The focus of my work in the last academic year has been on the implementation of this survey, hence mainly the preparation of the questionnaire and its distribution to potential participants. Although my plans were significantly affected by the coronavirus pandemic and I had to postpone postal distribution to the beginning of the next academic year, my questionnaire is now ready for dispatch. I also ran a small pretest over the summer and receiving feedback from people with different migration backgrounds on the design and content of the questionnaire. I am therefore very excited that my survey will be out in the field soon and look forward to reporting on the results next year!

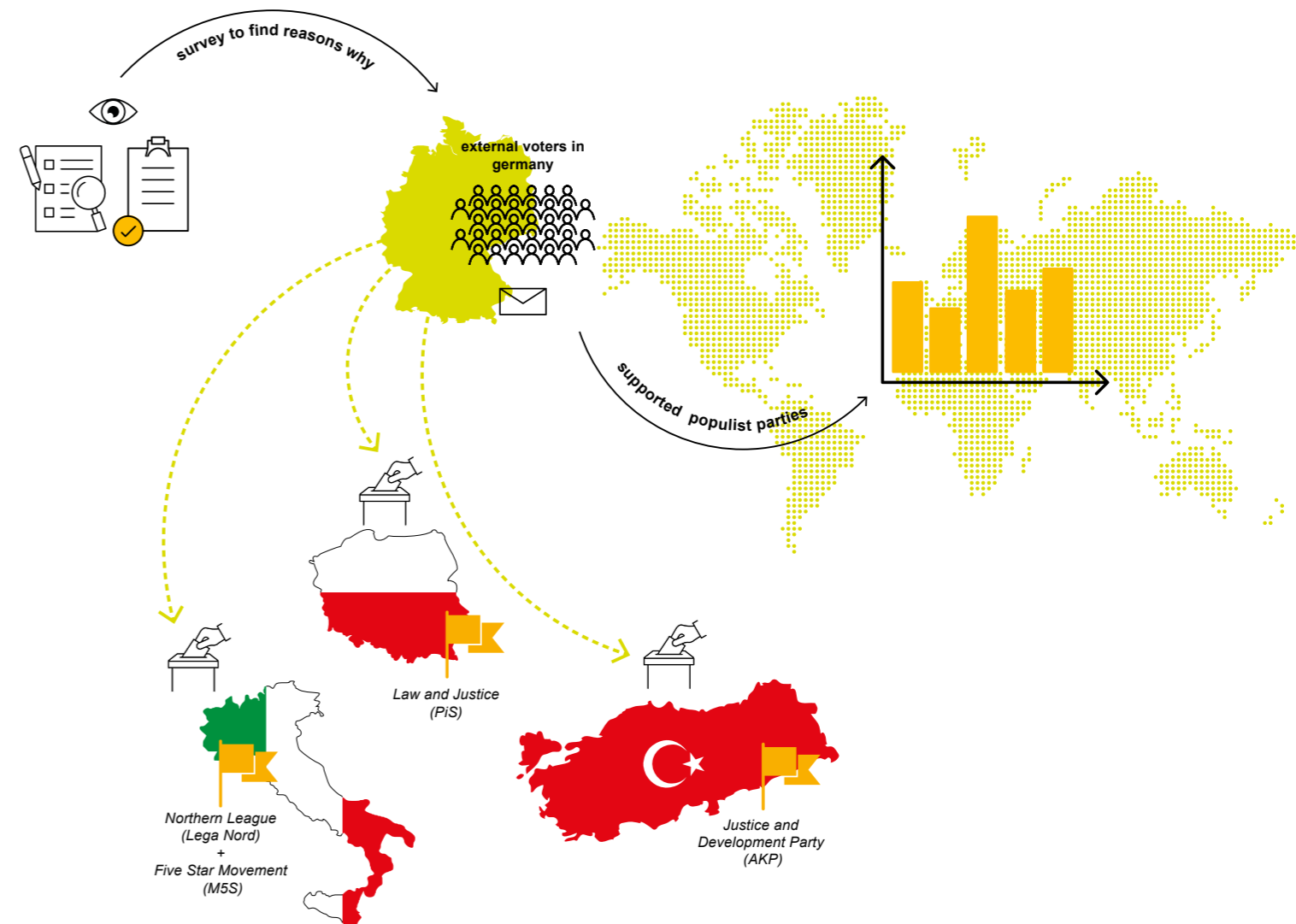
MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

In times of the coronavirus pandemic, we have all been reconsidering our research and broader contexts. Viewed from the perspective of political science, on the one hand, there are a number of pandemic-related issues that the discipline can help us to understand: How did different governments respond to the pandemic and why? How did evolving scientific knowledge about the virus influence policymaking? What shapes public opinion on the pandemic and the measures against it? How do states cooperate in fighting the pandemic? These are just a few questions that will probably soon be addressed by political scientists. On the other hand, the pandemic also exposed the extensive scope of inequalities within and across countries as well as the intricacies of the longstanding trade-off between individual freedoms and public health as a public good. It will thus be interesting to see how these debates evolve as the pandemic plays out around the world.

Immigrants in Germany as external voters

My research investigates two contemporary political developments: The spread of external voting, or voting in national elections from abroad, and the rise of populism. Not only have these two phenomena drawn the attention of the public recently, but some immigrant groups are also particularly inclined to vote for populist parties in their countries of origin. This raises the following question: How can populist parties, with their anti-European and anti-immigration attitudes and opposition to liberal democratic principles, find support among immigrants who reside in a Western European democracy?

In order to answer this question, I examine the party preferences of people with Turkish, Polish and Italian backgrounds living in Germany when voting in their countries of origin, and try to identify links between their views and their experience as immigrants.



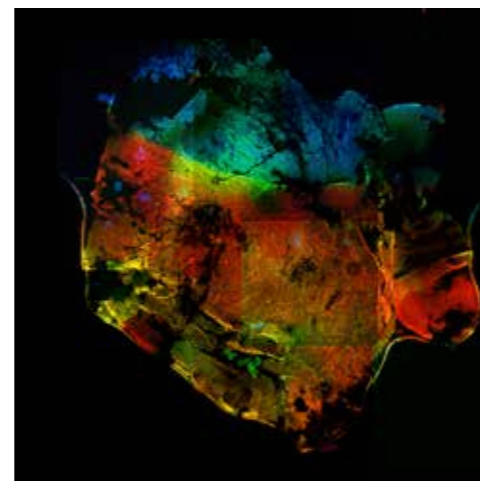
Julián Torres-Dowdall

Fellow since 08/2013
Department of Biology



Can we predict evolutionary outcomes?

My project “Ontogeny and evolution: parallel cooption of developmental pathways in the adaptive evolution of the visual system of Neotropical cichlid fish in recently colonized crater lakes” has received funding for three years from the German Research Foundation. In it, I address the question of how genetic and developmental backgrounds influence the direction of evolutionary change. The predictability of evolution is a topical subject in biological science, and debate exists about the relative importance of stochastic-preventing predictions of future outcomes versus deterministic factors allowing for predictions. The many examples of different lineages developing parallel characteristics in response to similar environmental conditions have been interpreted as the deterministic role of natural selection dominating the direction of evolutionary change. However, other factors might influence the evolution of parallelisms, particularly those biasing the genetic variation available for selection to act on. This debate is not new, but only now can it be addressed by looking at the involved genes by applying modern molecular techniques. I aim to contribute to this debate by determining whether parallel evolution in the visual system of different species of cichlid fish is underlined by genetic biases originating from the assimilation of common developmental pathways or is the sole consequence of the deterministic role of natural selection.



MY OPINION ON HOW THE CORONAVIRUS PANDEMIC WILL INFLUENCE THE FUTURE OF MY DISCIPLINE →

I have not thought too deeply about the issue of how the current pandemic will impact on the field of evolutionary biology. However, there are a few things I might expect. The pandemic is likely to trigger an increase in the attention paid to viral/pathogen evolution. This could have several implications. Funding is expected to rise for that particular topic, potentially at the cost of funding in other fields. Increased funding might result in more jobs in that area. Hopefully, this will enhance our understanding of epidemiology, helping to make more scientifically informed political decisions in the future. On another level, I think that the field of biology might be greatly impaired in the years to come. Biology has a really important field component, and the current situation might complicate field work. In many cases, researchers conduct field work abroad, and travelling and obtaining permits for these expeditions might become very complicated. This could mean that the study of evolution in the lab, experimental evolution, might flourish as the necessity for alternatives to field work becomes apparent.

There are only a few potential solutions to the challenges of living in extreme environments

As part of my research on the evolution of livebearing fish, we recently discovered and described a new species we called *Jenynsia sulfurica*. The curiosity about this new fish is that it inhabits a sulfide spring in northern Argentina, an extremely toxic environment to most organisms. So far, less than 20 species of fish (out of more than 26,000!) have been found to live in such environments. These “extremophile” fish tend to develop remarkable adaptations to cope with the toxic and hypoxic conditions of sulphide springs. *Jenynsia sulfurica* is no exception. Notably, it has an enlarged head area allowing for an increase in gill surface area, which is highly advantageous in the oxygen poor sulphide spring. At the molecular level we also see adaptive changes, particularly in proteins involved in molecular respiration. The most remarkable aspect of this new species is that these characteristics are very similar (convergent) to those found in other fish that have independently colonized sulphide springs in Mexico. These fishes diverged more than 60 million years ago and belong to completely different lineages, yet they show convergent adaptations in morphology, behaviour and molecular characteristics. Thus, such species are very valuable to biologists as they offer information on the limits of tolerance to abiotic conditions, on the process of adaptive divergence and the predictability of evolution.

← The retina of a checkerboard cichlid fish with its visual pigments stained in different colours. Few species show such amazingly patterned retinas, where sensitivity to specific light wavelengths varies dramatically between the dorsal and the ventral part of the retina (the colours in the photo represent the part of the light spectrum where specific pigments are more sensitive). Amazingly, these patterned retinas evolved independently in different cichlid lineages. Is this parallel evolution the sole consequence of deterministic factors such as natural selection? Or are there other factors, such as genetic or developmental constraints, that might also influence the direction of evolution?



male



female

Jour Fixe

The Jour fixe is the weekly interdisciplinary session for fellows from all departments. It focuses on presentations of new projects and results of current projects, introduction of new junior research groups as well as topical discussions and debates concerning higher education policies. In the 2020 summer semester, the Zukunftskolleg also successfully tested a new digital format.

Winter term 2019|2020

15 October 2019

Presentations by ZUKONnect Fellows:

Mathematical Modelling and optimal control of typhoid fever → Hamadjam Abboubakar, Dept. of Mathematics and Statistics

Synthesis of alternative materials for the construction of photovoltaic cells → Denisha Gounden, Dept. of Chemistry

Police interventions in domestic violence: A cure or a curse for battered women in Southern Ghana and Lagos, Nigeria → Abena Valley, Dept. of Literature / Gender Studies

22 October 2019

The Lockean Theory of Belief Change → Benjamin Eva, Research Fellow, Dept. of Philosophy

5 November 2019

{Big|small} data, {big|small} theory? Some thoughts on the past, present and future of language dynamics → Henri Kauhanen, Postdoctoral Fellow, Dept. of Linguistics

Communication and collective behaviour in animal societies → Ariana Strandburg-Peshkin, Research Fellow, Dept. of Biology

12 November 2019

Publication Bias and Academic Career: Evidence from a Meta-Study in Development Economics

→ Katarina Zigova (/ Associated Fellow via mentorship), Dept. of Economics

19 November 2019

Jour fixe talk concerning the "Mittelbauinitiative" (mid-level academic staff initiative Konstanz) organized by Carolin Antos-Kuby → Carolin Antos-Kuby (Research Fellow / Philosophy) invited Sibylle Roth (History) and Hansjörg Neth (Psychology) from the "Mittelbauinitiative" to discuss the problems and possible solutions to the precarious employment system for early career researchers at German universities.

26 November 2019

Transfer Science into Society → Julia Wandt, Communication and Marketing (KUM), University of Konstanz

3 December 2019

Open Mic Jour fixe
A Story of Dinosaurs and Molecules → Thomas Böttcher, Research Fellow, Dept. of Chemistry

The most important thing is, that people believe': Political Leaders on TV screen in Russian Cinema, 1980s-2010s → Maria Zhukova, Associated Fellow, Dept. of Literature

10 December 2019

Open Mic Jour fixe
Public goods and service provision in academia - a discussion → Janina Beiser-McGrath, Associated Fellow, Dept. of Politics and Public Administration

A Look into Nanocrystals
→ Klaus Boldt, Research Fellow
Dept. of Chemistry

How does a string sound on the nanoscale? → Robert Hussein, Associated Fellow, Dept. of Physics

14 January 2020

Jour fixe on the topic of the term: "Change, Progress and Complexity" at the Zukunftskolleg
Open Discussion

21 January 2020

Jour fixe on the topic of the term: "Change, Progress and Complexity" at the university

The future of work and labour market institutions → Sebastian Findeisen, Dept. of Economics

Complexity in economic practice: A case for ethnography → Stefan Leins, Dept. of History and Sociology / Anthropology, focusing on cultures of economy

28 January 2020

Jour fixe discussion on the topic of the term: "Change, Progress and Complexity" in the context of digitalization

04 February 2020

Funding programme winners
How honey bees move within their nest → Michael Smith, Associated Fellow, Dept. of Biology

Anticipations and disruptions of the first Synthetic Age: rubber, science and resources, c.1839-1945 → Moritz von Brescius, Associated Fellow, Dept. of History and Sociology

11 February 2020

Assembly of Members
Election of new members to the Executive Committee

Summer term 2020 (digital)

5 May 2020

Open discussion on "COVID-19 research at the university - What is happening in your department?"

12 May 2020

Open discussion on "Fellows' e-Learning / e-Teaching experiences"

19 May 2020

The effect of social and individual information in regulating the foraging behaviour in bumblebee colonies, → Ebi Antony George, Research Visit Fellow, Dept. of Biology

26 May 2020

Open Lab: an open-science platform for online data collection → Yury Shevchenko, Winner of Interdisciplinary Collaborative Projects Programme 2019, Dept. of Psychology

2 June 2020

Autophagy: My journey to the recycling world → Svetlana Boycheva Woltering, Research Fellow, Dept. of Biology

9 June 2020

Reconciliation of employment and family labour in the second half of life - What we (don't) know about it and why it matters to learn more about it → Ariane Bertogg, Postdoctoral Fellow, Dept. of History and Sociology

23 June 2020

Complexity in phototactic behaviour: why "like a bee to a flame" would not work... → Morgane Nouvian, Research Fellow, Dept. of Biology

30 June 2020

Controlling crystallization towards developing advanced materials → Cristina Ruiz Agudo, Research Fellow, Dept. of Chemistry

7 July 2020

Machine learning for customized quantum state tomography → Violeta Ivanova Rohling, Postdoctoral Fellow, Dept. of Physics & Computer Sciences

14 July 2020

Assembly of Members
Election of new members to the Executive Committee

Facts and Figures

“Disrupted Order?”

Andrea Lailach-Hennrich won the 2019 prize question of Collegium Helveticum and Zukunftskolleg



As a common German saying goes, “Ordnung ist das halbe Leben” (Roughly: A tidy house, a tidy mind). And indeed, different kinds of order are part of our lives and, of course, of many research disciplines: Social order – referring to the conduct of communality in social sciences; order – as tools

for classifying organisms by rank in biology; a holy order, the *ordo salutis* – which relates to the salvific business of the church; or an order – as antithetical concept of chaos in philosophy. And sometimes it is the lack of order or its intentional or latent disruption that attracts the researcher’s attention.

The joint prize question of the Collegium Helveticum and the Zukunftskolleg (application deadline: 16 September 2019) invited the contributors to unravel ‘order’ and to show how it can be disrupted and what consequences may result from disrupted orders. The requested formats of the contributions could include essays, research notes and short articles as well as artwork, cartoons, short stories, scores and written concepts of performances and the like.

Andrea Lailach-Hennrich (Alumna / Politics and Public Administration) won the 2019 prize question competition with her essay entitled “From Enlightenment to Utopia”. Her article offers interpretations of how our “being-in-the-world” is framed by given social orders. As the jury highlighted, Andrea’s contribution meets the standards of a philosophical essay and indicates the author’s academic background, but is still accessible to non-philosophers.

Jeff Kochan (Associated Fellow/ Philosophy), came in second in the year’s prize question competition. His piece of experimental poetry – the fractal poem “One seeks to find measures” disrupts the explicitly ordered metric feet and fixed line measures of English poetry that has prevailed for centuries.

The public announcement of the winners took place on 21 November 2019 at the Collegium Helveticum in Zurich. The winners received prize money.

Andrea Lailach-Hennrich: “From Enlightenment to Utopia”**Abstract:**

In his 1783 essay “Answering the Question: What Is Enlightenment?”, German philosopher Immanuel Kant defines enlightenment as “...man’s emergence from his self-incurred immaturity (Unmündigkeit)”. According to Kant’s definition, persons are immature when they tend to rely more strongly on the leadership of others than on their own ability to reason. Kant misses, however, a key aspect: that people are linked to each other socially. People are organized into communities; their actions are structured by social orders. Social orders create the framework for interpreting the world and ourselves, because they provide us with categories we can use to try and discover who we are. It is this aspect of the social orders that makes it necessary to understand how and why they should be disrupted. My text shows that disrupting social orders is an act of enlightenment. This modified understanding of enlightenment applies when social orders, as a result of their ideology, legitimize existing power relations and inequality. I offer a contrasting definition of “enlightenment” to Kant’s. I maintain that enlightenment has three moments: the critical moment, where an existing ideology is called into question, the utopian moment, where the will to break social orders identified as unjust comes into play, and the imaginative moment, where the courage exists to devise a more just world.

Jeff Kochan: “One Seeks to Find Measures”

*Disciplined metrical assay, catenated head to toe,
spun from a crenelated brain, blocked out into nested feet.
While time and space catapult through sky, city, and wilderness,
kettling discord in the streets, softening the human soul.
And now, and now, flipping from the start, cautiously, carefully,
reverse the steps, calibrate anew, most careful, most cautious.*

*Tattered grey bandages shift up, cover the contusions, press
blood vessels back under a skin fractured by the vision quest.
One seeks to find measures left untouched, sunk beneath consciousness,
sediments generating thought-spandrels in a lace of sound,
while iambs break open on the line, bleeding immaculate
dactylic beats, sliding on the sharp edge of hegemony.*

*To mould a time future from a time past. Does Pythagoras
perhaps presage Mandelbrot? Does time present precipitate
scalar geometry, or vice versa? The Platonic sun
may be a mere phantom in the dried husk of ontology.
Formal illumination still radiates the wasted land
even as Being, with its parts, fizzles in the twilit loam.*

*Seeder and harvester now turn back from the frontier, repeat
furrow on furrow the ingrained course of an unrestful age.
But Earth persists, reckons with the brute layers of history,
patterns its movements in a self-similar arithmetic,
alive, awake, arcing through the dust field of the universe.
One seeks to find freedom in the rule-governed audacity*

*of structured art, forging new techniques, founding new settlements.
But reason chafes, pitches on the reins, bids for more liberty,
more than is warranted by life, more than will abide in love.
One seeks to find poetry in mixed feelings of autarky,
doubt and community, with words braided into textured strings,
opening pathways from the sealed subject to the shared plateau.*

*To tinker pure thought into untried worlds, where humility
and courage push out from a conceit-ravaged interior,
draping the woodlands in a rich, rhythmical, syncretic song.
The mind reflutes channels into dark strata, recirculates
ritual cadences through blank turbulence, and gently rings
disciplined metrical refrains, catenating toe to head.*

ZUKOnnect Fellowship – More intercultural exchange at the Zukunftscolleg

In 2019, the Zukunftscolleg introduced **ZUKOnnect (former AAA) Fellowships** to support early career researchers from Africa, Asia and Latin America. The fellowships aim to strengthen cultural diversity at the Zukunftscolleg and to stimulate the intellectual and integrative discourse amongst its fellows. By broadening its academic horizons, the Zukunftscolleg wants to promote greater intercontinental dialogue in research.

ZUKOnnect Fellowships last up to four months, which gives the fellows enough time to extend their research networks into new regions and initiate lasting research partnerships. The research stays at the Zukunftscolleg also enable ZUKOnnect Fellows to familiarise themselves with the research environment at the University of Konstanz and enrich the scientific discussions within the university, while maintaining ties to their home university.

For the second call for applications for ZUKOnnect Fellowships (application deadline: 28 February 2020), 297 applications were submitted, 205 of which were eligible. The Zukunftscolleg received eligible applications from 47 countries – 47.3% from Africa, 33.6% from Asia and 18.7% from Latin America. Applications came from all 13 departments at the University of Konstanz, mostly from the Department of Biology. About one third of applications were from female researchers.

After a peer-reviewed selection process, the Executive Committee awarded six scholarships to:

Pedro de Lima

*Mathematics and Statistics,
Brazil,*

local host: Reinhard Racke

Giovanna Rodriguez-Garcia

*Politics and Public Administration,
Mexico,*

local host: Christian Breunig

Krizler Tanalgo

*Biology,
China,*

local host: Mag Crofoot

Josiah Taru

*History and Sociology,
Zimbabwe,*

local host: Thomas Kirsch

Afrasa Mulatu Urge

*Biology,
Ethiopia,*

local host: Erika Isono

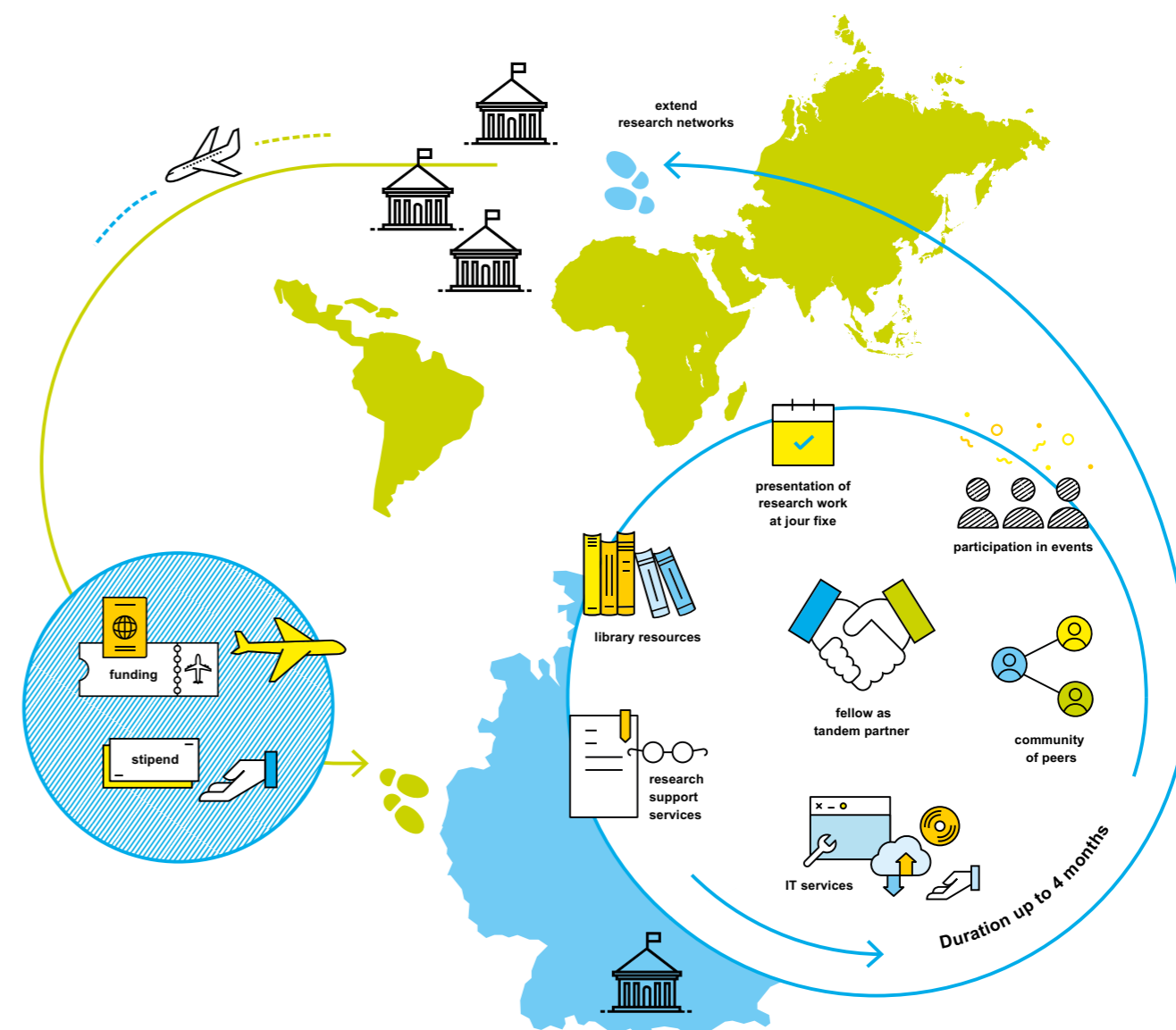
Vishwanath Varma

*Biology,
India,*

local host: Iain Couzin

Due to the coronavirus pandemic, their research stay at the Zukunftscolleg will be supplemented by a digital programme starting in October 2020, which will give ZUKOnnect scholarship holders access to KIM services and allow them to participate actively in (digital) events organised by the Zukunftscolleg as well as enter into contact with their local hosts for a period of 12 months. The 2020 ZUKOnnect Fellows will be on campus from April 2021 onwards.

The ZUKOnnect Fellows become an integral part of the community at the University of Konstanz, regardless of the rather short duration of their stay. The Zukunftscolleg will benefit greatly from this intercultural and intellectual exchange.



Funding Programmes

The Zukunftskolleg offers its fellows a close-knit and diverse network of support. This not only creates ideal working conditions for young scholars but also provides the best possible preparation for their scientific careers. Some support measures are also open to Senior Fellows, Associated Fellows and postdoctoral researchers at the University of Konstanz.



Co-Funding

This programme offers financial support to co-fund the human and material resources needed for projects at the Zukunftskolleg, e.g. for student or research assistants, conferences, equipment, research trips or consumables. Listed are some examples for approved Co-Funding applications.

Carolin Antos-Kuby (Dept. of Philosophy)
Funding for hiring student assistants

Ariane Bertogg (Dept. of History and Sociology)
Funding for hiring a student assistant

Klaus Boldt (Dept. of Chemistry)
Funding the costs for the production and the graphic design of the cover image of the journal Nano Letters

Julia Boll (Dept. of Literature)
Funding for hiring student assistants

Svetlana Boycheva Woltering (Dept. of Biology)
Funding for equipment: acquiring a microplate reader
Funding for consumables: chemicals and consumables

Panteleimon Eleftheriou (Dept. of Mathematics)
Funding of costs for two job interviews and for participation in a conference in Logic in Lisbon, Portugal, on 30.01.-1.02.2020

Jolle Jolles (Dept. of Biology)
Funding for editing work on a video presenting his research
Funding to participate in the SEB conference on extreme climate events in York, UK, on 10.-12.09.2019
Funding for hiring student assistants

Cornelia Klocker (Dept. of Law)
Funding of team building and workshop materials
Funding for hiring a student assistant

Gisela Kopp (Dept. of Biology)
Funding for purchasing equipment for obtaining genetic samples
Funding for hiring a student assistant

Alexandra Kosanic (Dept. of Biology)
Funding of a research stay at the University of Leeds
Funding to participate in the World Biodiversity Forum in Davos on 23.-28.02.2020
Funding for travel costs to visit her mentor
Dr. Jen Dyer

Jennifer Randerath (Dept. of Psychology)
Funding of travel costs for the participation of her Bachelor student Anne Herschbach in the Kuratoriumssitzung Lurija Institut on 07.-08.11.2019
Funding of travel costs to visit LMU München Neuropsychological Ambulance on 18.-22.11.2019
Funding of travel costs for the participation of her doctoral student Sarah Stoll in the TEAP conference in Jena on 22.-25.03.2020

Gianluca Rastelli (Dept. of Physics)
Funding for German language courses
Funding of visual abstract of his research project

Philip Rathgeb (Dept. of Politics and Public Administration)
Funding for hiring a student assistant

Stephan Streuber (Dept. of Computer and Information Science)
Funding to support the interdisciplinary project with Lorenz Assländer (Sport Science) “Integration of virtual reality in balance control experiments”
Funding of the Project “Augmented Visual Orientation Cues to Improve Balance and Prevent Falls”

Nihan Toprakkiran
(Dept. of Politics and Public Administration)
Funding for material costs of a research survey in Germany
Funding for hiring a student assistant

Maria Zhukova (Dept. of Literature)
Funding for joint book presentations with following discussion to the topic “Representing Television under Communism” with Georgi Gospodinov (Bulgaria) and Maria Kapajeva (Estonia/UK), including the recording of the event

Jolle Jolles (Dept. of Biology)
Mentor: Jens Krause (Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Berlin)
Project title: An individual-based approach to understanding the effects of environmental change in freshwater fish populations

Cornelia Klocker (Dept. of Law)
Mentor: Tove Hansen Malloy (European Center for Minority Issues, University of Flensburg)
Project title: What makes a group? An empirical study of the European Court of Human Rights’ understanding of the term “group” in its non-discrimination case law

Eva Lievens (Dept. of Biology)
Mentor: Kayla King (University of Oxford, UK)
Project title: The effect of multistep infections on the evolution of host-parasite systems

Inga Schalinski (Dept. of Psychology)
Mentor: Martin Hersch Teicher (Harvard Medical School in Boston, USA)
Funding of additional costs for her Mentorship 2018

Katharina Zahner (Dept. of Linguistics)
Mentor: Anne Cutler (MARCS Institute, Western Sydney University, Australia)
Project title: Towards promoting awareness for the teaching and learning of prosody in a foreign language

Maria Zhukova (Dept. of Literature)
Mentor: Stephen Hutchings and Vera Tolz (Univ. of Manchester, UK)
Project title: Reframing Russia for the Global Mediasphere: From Cold War to “Information War”

Katarina Zigova (Dept. of Sociology)
Mentor: Chris Doucouliagos (Deakin University of Melbourne, Australia)
Project title: Ideological Biases in Effect Size Reporting



Mentorship

The Mentorship Programme enables fellows and postdoctoral researchers at the University of Konstanz to network with distinguished colleagues both in Germany and abroad, and to maintain these contacts through mutual research visits.



Interdisciplinary Collaborative Projects

This programme aims to promote research collaborations between junior researchers. An interdisciplinary research project gives grant holders the opportunity to identify and explore new, innovative and/or risky research perspectives with neighbouring disciplines and across disciplines.

Anja Osei (Dept. of Politics and Public Administration) and **Florian Stoll** (Cultural Studies, University of Bayreuth)

Project title: Stratification, ways of life and socio-political orientations in Kenya and Cote d'Ivoire. A comparative mixed-methods study in Sociology and Political Science

Yuri Shevchenko (Dept. of Psychology), **Felix Henninger** and **Teon Lamont Brooks** (Experimental Psychology)

Project title: Open Lab: an open-science platform for online data collection



Intersectoral Cooperation Programme

The Intersectoral Cooperation Programme aims to develop cooperation between postdoctoral researchers and the non-academic sector. Grants are awarded in support of partnerships

that foster joint research projects with industrial partners, companies, social institutions, cultural institutions, archives, public bodies or non-profit organisations.

Jennifer Randerath (Dept. of Psychology), **Dominik Klaasen van Husen** (Medical Section Head of Psychotherapeutic Neurology, Kliniken Schmie-der Konstanz) and **Dr. Johanna Maier-Karius**, Dipl. Psych. **Eileen Murray** and **Jonas Matuschek** (Head of Zentrum für Psychotherapie Bodensee, apb Konstanz)

Project title: Cognitive behavioral Neuro-Psychotherapy for Patients with neurological disorders (PwND)

Cristina Ruiz Agudo (Dept. of Chemistry), **Philipp Keckeis** (IPG Pulvertechnik AG)

Project title: Super-hydrophobic power-coatings for self-cleaning surfaces



Research Visit

New to the network of support measures, this programme seeks to enhance international research cooperation and to support the international mobility of early career researchers. It funds temporary research stays both at the Zukunftskolleg and abroad for intercultural exchange among peers. Outgoing Research Visits encourage temporary assignments for our fellows to a partner Institute for Advanced Study or any international research university. Within the Incoming Research Visit programme, our fellows can nominate international early career researchers for a Research Visit at the Zukunftskolleg (or early career researchers from partner IAS apply). Between August 2019 and July 2020 the following Research Visits were approved:

Ebi Antony George (Dept. of Biology)

Incoming Research Visit from the National Centre for Biological Sciences, India

Project title: The effect of social and individual information in regulating the foraging behaviour in bumblebee colonies

Cornelia Klocker (Dept. of Law)

Outgoing Research Visit to Waseda Institute for Advanced Study, Japan

Ekaterina Mikhailova (Dept. of Geography)

Incoming Research Visit from Lomonosov Moscow State University, Russia

Project title: European Border Twin Cities under Strain of Migration: Responses by Civil Society and Political Actors

Sergiu Sava (Dept. of Philosophy)

Network Research Visit from "Al.I. Cuza" University Iasi, Romania

Project title: Collective Intentionality, Counter-Intentionality: Analytic Philosophy, Phenomenology



Independent Research Grant

The Independent Research Grant aims to promote independent research by postdocs at the University of Konstanz. The programme supports the exploration of new ideas and the implementation of pilot projects. The Zukunftskolleg invites applications for financial support of up to EUR 7,000 for projects that help the individual applicant attain scientific independence.

Liam Beiser McGrath (Dept. of Politics and Public Administration)

Project title: The political economy of technological innovation and climate change

Vlad Demartsev (Dept. of Biology)

Project title: Remote acoustic grooming in meerkats: selectivity of response and turn-taking efficiency as a function of social tie strength

Stephanie Dimitroff (Dept. of Psychology)

Project title: The effect of early life adversity

on relaxation experiences as indexed by psychophysiological reactivity

Guillermo Gonzales-Rubio (Dept. of Chemistry)

Project title: Laser-assisted synthesis of colloidal alloy nanoparticles

David Koll (Dept. of Economics)

Project title: The impact of divorce laws in the short and long run

Sebastian Krapp (Dept. of Mathematics)

Project title: Analysis without the Archimedean Property

Philipp Lutscher (Dept. of Politics and Public Administration)

Project title: Propaganda in crisis-ridden autocracies

Bing Ni (Dept. of Chemistry)

Project title: Transformation of amorphous metal sulfides into well-defined crystalline nanostructures via a secondary nucleation mechanism

Claudia Podoreutz (Dept. of Biology)

Project title: Characterizing antimicrobial and anti-inflammatory properties of shark skin bacterial isolates

Katharina Zahner (Dept. of Linguistics)

Project title: Getting the question: how German infants acquire intonational contrasts

Events

Events organized by the Zukunftskolleg and its fellows.

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2019

2019 summer semester

The Zukunftskolleg launched its first “Zukunftskolleg Video Award” as part of its network activities with its 24 sister institutions in Europe (NetIAS). It was launched on the occasion of the European Researchers’ Night on 27 September 2019. The aim was to produce a video that only lasts about 3 minutes and presents the fellow’s individual research or a joint research project. In total, nine fellows made a video and took part in the competition.

28 July – 1 August

Set theory: Briding mathematics and philosophy
Second Networking Conference of the Forcing Project, University of Konstanz
Organised by Caroline Antos-Kuby with Neil Barton, Deborah Kant, Daniel Kuby

26 August

Low-cost automation solutions for the study of animal behaviour
Workshop organised by Jolle Jolles
Association for the Study of Animal Behaviour (ASAB) conference, Konstanz

19 – 21 September

Re-Wiring the Switchboard: Interdisciplinarity, Intercultural Exchange and Academic Community in Context
Scientific Retreat, Zukunftskolleg

13 September

Workshop Apraxie
Workshop organised by Jennifer Randerath with Prof. Hermsdoerfer, Prof. Weiss-Blankenhorn
Deutsche Gesellschaft für Neurotraumatologie und klinische Neurorehabilitation (DGNKN) 2019 in Berlin, Germany

26 – 27 September

Between Populism and Capitalism: The Political Economy of Welfare States and Growth Models
Two-day workshop organised by Philip Rathgeb with Prof. Marius Busemeyer
University of Konstanz

29 October

Scientific Advisory Board Meeting
Zukunftskolleg, University of Konstanz

6 November

Migration meets Music
Vernissage of exhibition of five artworks by British illustrator George Butler followed by music from the “Blue Stockings”
Organised by the Zukunftskolleg
Café Mondial, Konstanz

21 November

Joint fellow meeting and Award Ceremony of the Prize Question “*Disrupted Order?*”
Organised by the Zukunftskolleg and the Collegium Helveticum, Zurich

27 November

Netherlands Society for Behavioural Biology
Full-day PhD Workshop co-organised by Jolle Jolles
Part of the 2019 Netherlands Society for Behavioural Biology (NVG) meeting to facilitate discussion about science and academia for PhD students in behavioural biology, University of Groningen, The Netherlands

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2020

12 – 13 February

Workshop on Future Research Directions
Workshop organised by the Zukunftskolleg for candidates applying for a 5-year Research Fellowship
University of Konstanz

16 – 19 February

Resolving the Full Picture
714th Heraeus-Seminar organised by Klaus Boldt
Physikzentrum Bad Honnef, Germany

5 – 7 May

Collaborative Research Grant Selection Symposium (virtual)
Organised by Ariana Strandburg-Peshkin in conjunction with Meg Crofoot and the Ecology of Animal Societies Department

16 June

Diversity and inclusion in film
Organised by Cornelia Klocker and Jacob Bloomfield
In cooperation with Zebrakino Konstanz
Queergestreift Filmfestival, Movie screening of ‘Holy trinity’ by Molly Hewitt

21 – 26 June

Minerals to Materials: Geomimetic Pathways and Exotic Reactivity for a Sustainable Future
Organised by Cristina Ruiz Agudo
Goldschmidt virtual conference 2020

20 July

The Radical Right and Economic Policy
Paper Panel organised by Philip Rathgeb
Society for the Advancement of Socio-Economics (SASE) Online Conference

Talks

Carolín Antos-Kuby

The 'algebraic' vs. 'non-algebraic' distinction, Workshop on Structuralist Foundations, University of Vienna, Austria, February 2020

A Second Philosophy account of models of set theory Workshop in Set Theory and Philosophy of Mathematics, University Paris Diderot, France, January 2020

A Second Philosophy account of the introduction of Forcing Set theory in the UK, University of Oxford, United Kingdom, December 2019

Conceptual change in set theory: Exploring mathematical phenomena Fachbereichskolloquium, University of Konstanz, December 2019

Ariane Bertogg

Geschlechterungleichheiten: Theoretische Erklärungen und empirische Anwendungen Guest lecture in Grundbegriffe der Soziologie, Lecture, BA, Sociology, University of Luzern, Switzerland, 6 April 2020

Needs or Obligations? The Role of Childcare Infrastructure and Regional Norms for Reconciling Grandchild Care and Employment Kolloquium Life Course and Generations, University of Zurich, Switzerland, 4 March 2020

Partnership Transitions and Cognitive Health among the European 50+ Kolloquium AG Strauß / Gender Studies, University of Konstanz, 3 March 2020

Gender Studies - Aktuelle Forschung zu Elternschaft, Erwerbstätigkeit und Lebenszufriedenheit Guest lecture in Ringvorlesung Soziologie, MA, Sociology, University of Konstanz, 13 February 2020

Reconciling Employment and Informal Caregiving: A European comparison among the population 50+ (with Tiziana Nazio and Susanne Strauß) Pension Research Workshop, Finnish Center for Pensions, Helsinki, Finland, 3 – 4 February 2020

Needs or Obligations? How Welfare Policy and Regional Culture Influence Reconciling Grandparental Childcare and Employment Kolloquium Sociology, KU Leuven, Belgium, 26 November 2019

Need or Obligations? How Welfare Policy and Regional Culture Influence Reconciling Grandparental Childcare and Employment Kolloquium Midi de la recherche, UC Louvain, Belgium, 19 November 2019

Intergenerational Solidarity in Family and Society Guest lecture in: Solidarity in European Welfare States, Lecture, BA, Sociology, KU Leuven, Belgium, 12 November 2019

The impact of parenthood on life satisfaction in the light of changing gendered parenthood norms (with Klaus Preisner, Franz Neuberger and Julia Schaub) Consortium for Sociological Research (ECSR) Annual Conference, Lausanne, Switzerland, 12-14 September 2019

Reconciling Employment and Informal Caregiving: A European comparison among the population 50+ (with Tiziana Nazio

and Susanne Strauß) Consortium for Sociological Research (ECSR) Annual Conference, Lausanne, Switzerland, 12-14 September 2019

Jacob Bloomfield

A Short History of Drag: A Workshop LGBTQ+ History Month Event sponsored by the School of History, University of Kent, Canterbury, United Kingdom, February 2020

Queer History and its Methods LGBTQ+ History Month Event sponsored by the School of History, University of Kent, Canterbury, United Kingdom, February 2020

Klaus Boldt

Quantification of Material Gradients in Nanocrystals, NANOPLUS (online conference), 30 April 2020

The Emergence of Anisotropy and the Role of Intermediates in Nanocrystal Formation NaNaX9, Hamburg, Germany, 18 September 2019

Reaction Intermediates Determine the Nucleation of Semiconductor Nanocrystals Zsigmondy Colloquium of the German Colloid Society, Dresden, Germany, 10 July 2019

The Emergence of Anisotropy and the Role of Intermediates in Nanocrystal Formation IC4N Conference, Corfu, Greece, 1 July 2019

Thomas Böttcher

Crossing the Borders of Chemistry and Biology for targeting the Corona Virus Proteases The European NetIAS Lecture Series online lecture, 16 July 2020

Targeting the Proteases of SARS-CoV-2, Zukunftskolleg online lecture, 5 May 2020

Small molecule modulators of bacterial behavior and customized antibiotics, Invited talk at the University of Innsbruck, Austria, 11 November 2019

Exploring and exploiting the chemistry of microbial interactions LMU University Munich, Germany, 2 November 2019

Elucidating and controlling the chemistry of microbial interactions, Invited talk at Uppsala University, Sweden, 25 October 2019

Elucidating and controlling the chemistry of microbial interactions, Invited talk at Karolinska Institute Stockholm, Sweden, 24 October 2019

Exploring and exploiting the chemistry of microbial interactions, University of Vienna, Austria, 17 October 2019

A chemical biology approach to controlling microbial interactions Invited talk at TU/e Eindhoven University of Technology, The Netherlands, 26 September 2019

Elucidating and controlling chemical interactions of human pathogens International VAAM Workshop 2019, Biology of Microorganisms Producing Natural Products, Jena, Germany, 16 September 2019

Udith Dematagoda

“Diabolical Machines of Empty Will”: Masculinity, Fascism, and the Modernism of the Real in Wyndham Lewis’s The Vulgar

Streak, Guest lecture, Department of English, Johns Hopkins University, USA, November 2019

Panteleimon Eleftheriou

Strongly minimal groups in o-minimal structures, Talk at conference: Days in Logic 2020, University of Lisbon, Portugal, 30 January – 1 February 2020

Expansions of o-minimal structures which introduce no new smooth functions, Invited lecture, Models and Sets Seminar, University of Leeds, United Kingdom, 19 November 2019

Expansions of o-minimal structures which introduce no new smooth functions, Invited lecture, Logic Seminar, University of Manchester, United Kingdom, 18 November 2019

Hilbert’s 10th problem Invited lecture, Graduate seminar for Math for IT students, Charles University Prague, Czech Republic, 7 November 2019

Benjamin Eva

Comparative Learning, University of Texas at San Antonio departmental philosophy seminar, USA, January 2020

Comparative Learning, Duke University departmental philosophy seminar, USA, January 2020

Comparative Learning Columbia University departmental philosophy seminar, USA, January 2020

How a minimal learning agent can infer the existence of unobserved variables in a complex environment (with Katja Ried, Hans Briegel

and Thomas Müller) AI CON 2019, Bosch centre for artificial intelligence, Germany, October 2019

How a minimal learning agent can infer the existence of unobserved variables in a complex environment (with Katja Ried, Hans Briegel and Thomas Müller)

German Physical Society 2019 Workshop on Quantum Science and Information Technologies, Germany, October 2019

Four Approaches to Supposition (with Ted Shear and Branden Fitelson) 2019 Pacific Rim Conference on Artificial Intelligence, Fiji, August 2019

Four Approaches to Supposition with Ted Shear and Branden Fitelson, 2019 Australasian Philosophical Association Conference, Australia, August 2019

Violeta Ivanova-Rohling

Optimizing Quantum State Tomography, Poster Presentation, Munich Conference on Quantum Science and Technology 2020, Munich, Germany, 6-8 July 2020

Jolle Jolles

Schistocephalus parasite infection alters sticklebacks’ movement ability and thereby shapes social interactions, Talk, ASAB Virtual conference, 16 July 2020

Individual heterogeneity and collective animal behaviour: mechanisms and consequences Invited Talk, University of Girona, Spain, 14 February 2020

The role of individual heterogeneity in collective animal behaviour Invited Talk, NIOZ colloquium,

NIOZ Texel, The Netherlands,
2 December 2019

The role of individual heterogeneity in collective animal behaviour, Invited plenary, Dobberke lecture at the NVG Meeting, University of Groningen, The Netherlands, 27 November 2019

Individual differences and collective behaviour Insights from stickleback experiments, Invited Talk, GELIFES, University of Groningen, The Netherlands, 26 November 2019

An individual-based approach to understanding the effects of environmental change in freshwater ecosystems, Poster, BES Extreme Climatic Events, York, United Kingdom, 11 November 2019

Parasitism alters individual and collective motion in sticklebacks. Talk, ASAB conference, Konstanz, 27 August 2019

Cornelia Klocker

EU Military CSDP Operations, UN Security Council Authorisations and the Prohibition of the Use of Force: Exploring the Limits of the EU-UN Partnership Paper presented at the online workshop of the Joint European Society of International Law Interest Group 'EU as a Global Actor' at the City Law School, International Law and Affairs Group (ILAG) 'The European Union's External Action and International Law: A View From the Outside', London, United Kingdom, 12 June 2020

The European Court of Human Rights, Non-Discrimination and Empowerment: Exploring Collective Dimensions Interdisciplinary Centre for

European Studies, Europa-Universität Flensburg, Germany, 12 March 2020

The European Court of Human Rights, Non-Discrimination and Empowerment: Exploring Collective Dimensions European Centre for Minority Issues, Flensburg, Germany, 11 March 2020

Der Krisenherd Rojava: Situation von Minderheiten in Nahost (together with Mustafa Oerge) Amnesty International Gruppe Konstanz and ELSA-Konstanz e.V., University of Konstanz, 10 December 2019

Human rights and group empowerment: Regional human rights frameworks compared Paper presented at Annual Conference of the Law and Development Research Network: The Plurality of Law and Development, Humboldt University Berlin, Germany, 25 – 27 September 2019

Compensating victims of armed conflict: Evidence from the European Court of Human Rights Paper presented by at the Annual Conference of the Association of Human Rights Institutes: Human Rights and International Humanitarian Law: Challenges Ahead, University of Potsdam, Germany, 6 – 7 September 2019

Gisela Kopp

Sociality & Evolution, Visit of Hector-Stiftung II, University of Konstanz, 26 February 2020

Building an integrative framework of behavioural variation in a macroevolutionary context, Biology Departmental Seminar, University of Konstanz, 9 January 2020

Claudius Kratochwil

Molecular mechanisms of color pattern formation and evolution in cichlid fishes, Cichlid Science Meeting, Madrid, Spain, 9-12 September 2019

Oleksandra Kukharengo

Analysis of Dynamical Systems in Application to Chemical Data and Beyond, Talk at Symposium on Selected Topics in Science and Technology, Institute for Advanced Study - Technical University of Munich, Germany, January 2020

Takayuki Kurihara

Nonlinear Modulation of Optical Absorption in Orthoferrites due to Spin Precession induced by Intense Terahertz Magnetic Field (with Motoaki Bamba and Tohru Suemoto), IRMMW-THz 2019, Maison de Chimie, Paris, France, 2-6 September 2019

Morgane Novian

Recruitment during honeybee colony defence, Etho2020, University of Tübingen, Germany, 20 February 2020

Individual brains, collective task: social regulation of stinging behaviour in honeybees Centre for Mind/Brain Sciences (CIMeC), University of Trento, Italy, 11 September 2019

Jennifer Randerath

Behavioral and neuronal correlates of motor cognition Colloquium Developmental Psychology, University of Giessen, Germany, 2020

Diagnostik und Therapie der Apraxie und der Anosognosie

(with Dr. Ilka Buchmann) Süd-West-Akademie für Neuropsychologie (SWA-N) in Heidelberg, Germany, 7 March 2020

Gliedmassen-Apraxie: Theorie und Praxis, (with Imke Buesching) Rehaklinik Bellikon, Switzerland, 9 October 2019

Gianluca Rastelli

Circuit quantum electrodynamics in hybrid quantum dot systems Invited lecture Physikalisch Kolloquium, University of Konstanz, 29 October 2019

Circuit quantum electrodynamics in hybrid quantum dot systems Invited talk, Conference, Symposium Controlled Nanosystems 2019, SFB 716, Konstanz, 12 November 2019

Philip Rathgeb

Makers against takers: the socio-economic ideology and policy of the Austrian freedom party, Invited talk at research seminar, Department of Political Science, University of Salzburg, Austria, 27 November 2019

Makers against takers: the socio-economic ideology and policy of the Austrian freedom party Invited talk at workshop Personal Parties, Populism and the Radical Right, University of Copenhagen, Denmark, 4 November 2019

Makers against takers: the socio-economic ideology and policy of the Austrian freedom party Paper presentation at the Workshop Between Populism and Capitalism: The Political Economy of Welfare States and Growth Models at the University of Konstanz, 26-27 September 2019

Cristina Ruiz Agudo

Designer Ubiquitin Proteins Towards Controlling Calcium Carbonate Crystallization, Invited speaker in the session 07c Mineral Crystallization, Aggregation, and Dissolution in the Goldschmidt virtual conference 2020, 21-26 June 2020

Ariana Strandburg-Peshkin

Tracking everything: Challenges and opportunities for the study of collective animal behavior Workshop on the Physics of Behavior, 30 April 2020

Communication and collective behavior in animal societies Collective Information Processing Workshop, Humboldt University, Berlin, Germany, 4-6 March 2020

Communication and collective behavior in animal societies The Dynamics of Collective Decisions Workshop, Wissenschaftskolleg, Berlin, Germany, 12-14 February 2020

Communication and collective behavior in animal societies Neuroscience Department, University of Tübingen, Germany, 8 January 2020

Communication and collective behavior in animal societies Deutsches Primatenzentrum, Göttingen, Germany, 21 November 2019

Communication and collective behavior in animal societies IMPRS Grand Challenges Symposium, Seewiesen, Germany, 9-11 October 2019

Detecting meerkat calls using machine learning, Association for the Study of Animal Behavior Summer Conference University of Konstanz, 26-28 July 2019

Stephan Streuber

Computational tools to understand the human mind, Public Research Talk, Martin-Luther-University Halle-Wittenberg, Germany, 16 July 2020

Einsatz von Sensordaten für innovative Gesundheitsanwendungen Public Research Talk, University of Applied Sciences Düsseldorf, Germany, 06 December 2019

Welcome to the Matrix: How Virtual Reality facilitates Research on Social Interaction Keynote Lecture XLV Latin American Computing Conference, Panama City, Panama, 3 October 2019

How Virtual facilitates Research on Social Interaction, Inaugural Lecture, University of Konstanz, 15 July 2019

Elena Sturm

Getting to the roots of apatite-based biomineralization of dental hard tissues: from Conodonts and Cichlids to related bioinspired materials, Invited keynote talk, International Symposium on Biomineralization (BIOMIN XV) Munich, Germany, 9-13 September 2019

Julián Torres-Dowdall

Does side matter? Evolution of genital asymmetry in Anablepidae fishes, FB-Biology talk, University of Konstanz, 19 December 2019

Publications

Carolin Antos-Kuby

Antos-Kuby, C. et. al. 2020: *The Foundations of Mathematics: Competing Foundations, New Axioms and the Set-Theoretic Multiverse*. In: Special Issue of *emph{Synthese}*, Synthese 197, 2020.

Antos-Kuby, C., Barton, N. and S. Friedman 2020: *Universism and Extensions of $\mathcal{V}\mathcal{S}$* . In: Review of Symbolic Logic.

Antos-Kuby, C. 2020: *Conceptions of infinity and set in Lorenzen's operationalism*. In: Proceedings of the conference "Paul Lorenzen: Mathematician and Logician". Logic, Epistemology and the Unity of Science, Springer. Forthcoming.

Antos-Kuby, C., Friedman, S. and V. Gitman 2020: *Boolean-valued Class Forcing*. In: Archive of Symbolic Logic. Submitted.

Antos-Kuby, C. and D. Kant 2020: *A general procedure for a Second Philosophy analysis into set-theoretic methodology*. In: Outstanding Contributions to Logic: Penelope Maddy, S. Arbeiter and J. Kennedy (Hrsg.), Springer. Submitted.

Antos-Kuby, C. and V. Gitman 2020: *Modern class forcing*. In: Research Trends in Contemporary Logic: M. Fitting, D. Gabbay, M. Pourmahdian, A. Rezus, A. Daghighi (Hrsg.), College Publications. Submitted.

Gruia Badescu

Bădescu, G. 2020: *Rewritten in stone: imperial heritage in the sacred place of the nation*. In: Cultural Studies, 2020. 34 (4). Retrieved <https://doi.org/10.1080/09502386.2020.1780283>.

Ariane Bertogg

Bertogg, A., Imdorf, C., Hyggen, C., Parsanoglou, D., & Stoilova, R. 2020: *Early job insecurity and gender discrimination in the hiring for skilled mechanics and IT workers. A factorial survey experiment with recruiters in Bulgaria, Greece, Norway and Switzerland*. In: Köl-

ner Zeitschrift für Soziologie und Sozialpsychologie, in press.

Preisner, K., Neuberger, F., Bertogg, A., & Schaub, J. M. 2020: *Closing the Happiness Gap: The Decline of Gendered Parenthood Norms and the Increase in Parental Life Satisfaction*. In: Gender & Society, 34(1): 31-55. doi:10.1177/0891243219869365.

Jacob Bloomfield

Bloomfield, J.: *Soldiers in Skirts: Cross-Dressing Ex-Servicemen, Homosexuality, and Censorship, 1945-1955*. In: Farrier, Stephen and Mark Edward (ed.), Drag Histories, Herstories and Hairstories: Drag in a Changing Scene, Volume 2. London: Bloomsbury. Forthcoming.

Bloomfield, J.: Review: *Rocking the Closet: How Little Richard, Johnnie Ray, Liberace, and Johnny Mathis Queered Pop Music by Vincent L. Stephens*. Cultural History. Forthcoming.

Bloomfield, J.: *Review: Reframing Drag: Beyond Subversion and the Status Quo by Kayte Stokoe*. In: Sexualities. Forthcoming 2020. Forthcoming.

Bloomfield, J. 2020: *Renegade or Retrograde: Questioning Little Richard's Legacy*. All About Jazz [online]. Available from: allaboutjazz.com/renegade-or-retrograde-questioning-little-richards-legacy-little-richard. Forthcoming.

Klaus Boldt

Spinnrock, A., Martens, M., Enders, F., Boldt, K., Cölfen, H. 2019: *Controlled Preparation of Nanoparticle Gradient Materials by Diffusion*. In: Nanomaterials, July 2019, Volume 9: 988.

Boldt, K., Bartlett, S., Kirkwood, N., Johannessen, B., 2020: *Quantification of Material Gradients in Core/Shell Nanocrystals Using EXAFS Spectroscopy*. Nano Letters. January 2020, Volume 20: 1009-1017.

Palencia, C., Yu, K., Boldt, K. 2020: *The Future of Colloidal Semiconductor Magic-Size Clusters- ACS Nano*. January 2020, Volume 14: 1227-1235.

Fischli, D., Enders, F., Boldt, K. 2020: *Kinetically Driven Nanorod Growth from Local Cluster Aggregates*. In: The Journal of Physical Chemistry C, May 2020, Volume 124: 12774-12783.

Noby, S., Wong, K., Ramadoss, A., Siroky, S., Hagner, M., Boldt, K., Schmidt-Mende, L. 2020: *RSC Advances*. June 2020, Volume 10: 24119-24126.

Thomas Böttcher

Ganley, J. G., Pandey, A., Sylvester, K., Lu, K.-Y., Toro-Moreno, M., Rütschlin, S., Bradford, J. M., Champion, C. J., Böttcher, T., Xu, J., Derbyshire, E.R. 2020: *A Systematic Analysis of Mosquito-Microbiome Biosynthetic Gene Clusters Reveals Antimalarial Siderophores that Reduce Mosquito Reproduction Capacity*. Cell Chem. Biol. Accepted.

Számosvari, D., Prothiwa, M., Dieterich, C. L., Böttcher, T. 2020: *Profiling Structural Diversity and Activity of 2-Alkyl-4(1H)-quinolone N-oxides of Pseudomonas and Burkholderia*. In: Chem. Commun. 56: 6328-6331.

Pawar, A., Basler, M., Goebel, H., Alvarez Salinas, G., Groettrup, M., Böttcher, T. 2020: *Competitive metabolite profiling of natural products reveals subunit specific inhibitors of the 20S proteasome*. In: ACS Cent. Sci. 6 (2): 241-246.

Rütschlin, S., Böttcher, T. 2020: *Engineering siderophores*. In: Methods Enzymol. 633: 29-47.

Prothiwa, M., Böttcher, T. 2020: *Competitive profiling for enzyme inhibitors using chemical probes*. In: Methods Enzymol. 633: 49-69.

Dow, L., Stock, F., Peltekis, A., Szamosvári, D.; Prothiwa, M.; Lapointe, A., Böttcher, T., Bailleul, B., Vyverman, W., Kroth, P. G., Lepetit, B. 2020: *Bacterial quinolones inhibit photosynthesis and respiration*

in diatoms. In: ChemBioChem 21: 1206 -1216. Rütschlin, S. and T. Böttcher 2020: *Inhibitors of Bacterial Swarming Behavior*. In: Chem. Eur. J. 26(5): 964-979.

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Udith Dematagoda

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Panteleimon Eleftheriou

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Benjamin Eva

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Jolle Jolles

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Cornelia Klocker

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Gisela Kopp

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Claudius Kratochwil

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Oleksandra Kukharenko

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Takayuki Kurihara

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Morgane Nouvian

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Jennifer Randerath

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Gianluca Rastelli

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Philip Rathgeb

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Rathgeb, P. 2020: *Makers against takers: the socio-economic ideology and policy of the Austrian Freedom Party*. In: West European Politics, Early View.

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Ariana Strandburg-Peshkin

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Stephan Streuber

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Elena Sturm

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Julián Torres-Dowdall

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Grants and Awards

External grants and awards secured by our fellows during the last academic year.

Ariana Bertogg

- Jos Berghman Welfare Studies Stipend, Visiting Research Fellow, at the KU Leuven, Belgium (funding period 09/2019 – 11/2019)

Jacob Bloomfield

- University of East Anglia, Archives and Collections Visiting Fellowship, 2 500 GBP, TBD (funding period 2020 – 2021)

Thomas Böttcher

- Accepted the position as full professor of “Microbial Biochemistry” at the Faculty of Chemistry and Department of Microbiology and Ecosystem Science, University of Vienna
- 2020 ERC Consolidator Grant: European Research Council “Controlling Activity of lysogenic Phages by Small Molecule Inducers and Dysregulators” amount: 1 992 240 EUR, (funding period 2020 – 2025)
- DFG SFB969 “Chemical and Biological Principles of Cellular Proteostasis” project C06, amount: 252 380 EUR, (funding period 2020 – 2024)

Panteleimon Eleftheriou

- 1-year Research Grant (PRIN 2017): Mathematical Logic, Sets and Computability. University of Pisa (Italy), Department of Mathematics (funding period 04/2020 – 03/2021)

Gisela Kopp

- Member of Die Junge Akademie at the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW) and the German National

Academy of Sciences Leopoldina, (funding period 07/2020 – 2025)

- Konstanz Fellowship, University of Konstanz (funding period 04/2020 – 03/2022)
- University of Konstanz Young Scholar Fund, Baboons in Ancient Egypt – The geographic origin of baboon mummies as revealed by aDNA analysis, 2000 EUR (funding period 04/2020 – 12/2020)
- University of Konstanz, Flexible working conditions for Post-docs with Family Duties, 2 958 EUR (funding period 02/2019 – 06/2019)

Morgane Nouvian

- Erasmus and staff mobility grant for co-supervision of a MSc student at the University of Trento, Italy

Jennifer Randerath

- DFG grant worth up to 267 252 EUR plus 58 800 EUR programme allowance for 36 months. The funded project is entitled “Tun oder Nicht Tun: Grundlagen Affordanzbasierter Entscheidungsleistungen” (“To do or not to do: Principles of Affordance-based Decision-making”).

- University of Konstanz Transfer Award

- Zukunftskolleg Video Award

Philip Rathgeb

- Science Award of the Austrian Chamber of Labour for the monograph “Strong Governments, Precarious Workers: Labor Market Policy in the Era of Liberalization” (Cornell University Press), 3 000 EUR

Ariana Strandburg-Peshkin

- Centre for the Advanced Study of Collective Behaviour Large Project Grant – Co-Investigator 2020: “The role of communication structure in consensus decision-making in human and animal groups”

Team: Helge Giese, Ariana Strandburg-Peshkin

Amount: 230 000 EUR (funding period: 3 years)

- Human Frontier Science Program Research Grant – Principal Investigator 2019 Communication and the coordination of collective behavior across spatial scales in animal societies

Team: Ariana Strandburg-Peshkin, Marta Manser, Kay Holekamp, Ben Hirsch, Marie Roch

Amount: 1 350 000 USD (funding period: 3 years)

Stephan Streuber

- University of Konstanz, AFF - Young Scholar Funds “Studying the role of visual feedback in a joint coordination task using Virtual Reality”, 6 737 EUR, 09.01.2020

Elena Sturm

- “Konstanzia Transition” funded by the Equal Opportunity Council

Julián Torres-Dowdall

- Deutsche Forschungsgemeinschaft. “Ontogeny and evolution: parallel cooption of developmental pathways in the adaptive evolution of the visual system of Neotropical cichlid fish in recently colonized crater lakes” 370 450 EUR (funding period 12/2019 – 11/2022)

Teaching

Carolyn Antos-Kuby

Summer term 2020: Begrifflicher Wandel wissenschaftlicher Theorien, Seminar

Summer term 2020: Formale Logik, Proseminar

Winter term 2019/20: Analytische Ontologie und Metaontologie, Seminar with Dr. Daniel Kuby

Winter term 2019/20: Was ist Erklärung in der Mathematik? Reading seminar

Winter term 2019/20: Mathematical logic: set theory and model theory, Seminar with Prof. Salma Kuhlmann

Ariane Bertogg

Summer term 2020: Begleitseminar Grundbegriffe der Soziologie, Online seminar, University of Luzern, Switzerland

Winter term 2019/20: Vereinbarkeit von Beruf und Familie, Seminar

Klaus Boldt

Summer term 2020: Grundlagen der Festkörperchemie, Bachelor lecture and exercises

Winter term 2019/20: Current issues and methods in nanoscience, Master and doctoral lecture and seminar

Winter term 2019/20: Fortgeschrittene Festkörperchemie, Bachelor lecture and exercises

Thomas Böttcher

Summer term 2020: Methods bridging disciplines: from Chemistry to Biology, Master course, transdepartmental collaborative teaching with Dr. Bernard Lepetit, Jun. Prof. Dr. Michael Kovermann and Jun. Prof. Dr. Andreas Lorbach

Summer term 2020: Organic Chemistry for Biologists, Lecture

Udith Dematagoda

Summer term 2020: Visiting scholar position, Department of English, Johns Hopkins University, USA

Benjamin Eva

Winter term 2019/20: Kripke’s Naming and Necessity, Undergraduate course in Philosophy

Cornelia Klocker

Summer term 2020: International Relations Law of the European Union, Online seminar

Winter term 2019/20: Minority rights in Europe, Seminar

Gisela Kopp

Summer term 2020: Animal Sociality I & II, Seminar (digital)

Summer term 2020: Sociality & Evolution within Evolutionary Organismal Biology lecture

Winter term 2019/20: Animal Sociality III & IV, Seminar

Claudius Kratochwil

Winter term 2019/20: Zoological course, Course

Winter term 2019/20: Evolution and Behavior, Lecture

Morgane Nouvian

Winter term 2019/20: Honeybee physiology: respiration, nutrition, excretion, nest thermoregulation, neurophysiology, courses given as part of the formation Apiculture, pathologie apicole of the Veterinary School of Nantes (ONIRIS), France

Summer term 2020: Pheromones and pheromone processing,

lecture given as part of the Advanced Course in Behavioural Neurobiology

Jennifer Randerath

Summer term 2020: Motor Cognition, Research Colloquium

Summer term 2020: Cognitive Neuro-Psychotherapy (I), Seminar

Winter term 2019/20: Motor Cognition, Research Colloquium

Philip Rathgeb

Winter term 2019/20: Comparative Social Policy, Seminar at the University of Salzburg, Austria

Ariana Strandburg-Peshkin

Winter term 2019/20: Computational Modeling of Collective Behavior, Co-Instructor

Stephan Streuber

Summer term 2020: Software Project, Seminar

Winter term 2019/20: Virtual Reality for Research, Lecture and seminar

Winter term 2019/20: Avatars and Intelligent Virtual Humans, Seminar

Elena Sturm

Summer term 2020: Materialanalytik – Methods of Solid State Chemistry, Seminar

Winter term 2019/20: Nanochemistry and -analytic, Lecture on Electron Microscopy

Julián Torres-Dowdall

Winter term 2019/20: Darwin comes to town, Seminar coconstructed with Dr. Joost Woltering

People and Connections

Scientific Advisory Board

The Scientific Advisory Board consists of internationally renowned researchers and representatives from industry, arts and funding agencies from Germany and abroad. It is appointed by the Rectorate of the University of Konstanz.

Alexandra Brand

- Chief Sustainability Officer, Syngenta, Basel, Switzerland.

- Member of the University Council, University of Konstanz.

Michael Hannon

- Professor and Chair of Chemical Biology, University of Birmingham, UK.

- Director of the EPSRC Research and Training Centre in Physical Sciences for Health, University of Birmingham, UK.

- President of the Society of Biological Inorganic Chemistry, USA.

Henrike Hartmann

- Head of the Executive Management of the Volkswagen Foundation, Hannover.

- Member of the Board of Trustees at various Max Planck Institutes and the Goethe University Frankfurt in addition to being a member of the Board of Directors at the Mathematisches Forschungsinstitut Oberwolfach (MFO, Oberwolfach Research Institute for Mathematics).

- Chair of the University Council, University of Konstanz.

Thomas Hengartner[†]

- Director of Collegium Helveticum, Zürich, Switzerland. (2016-2018)

- Professor of Ethnology, University of Zürich, Switzerland.

- Vice Dean of Research of the Philosophical Faculty, University of Zürich, Switzerland.

Jean-Baptiste Joly

- Founding and Artistic Director of the artist residence Akademie Schloss Solitude from 1989 until 2018.

- Honorary Professor at the School of Art Weißensee, College of Design, Berlin.

- Board member of various foundations, including the Merkur Stiftung and Rudolf Eberle Stiftung.

- Member of the Board of Trustees of the Kunstmuseum Stuttgart, Member of the Advisory Board of Transcultural Exchange Boston, Member of the Board of Res Artis.

Rainer Maria Kiesow

- Professor of Law at École des Hautes Études en Sciences Sociales (EHESS), Paris, France.

Manuela Nocker

- Senior Lecturer in Organization and Sustainability, University of Essex, UK.

Dagmar Schmieder

- Former President of Kliniken Schmieder, Konstanz

- Directorate of the Prof. Friedrich Schmieder Foundation

- Founder of the Lurja Institute, University of Konstanz

- Senator of Honour, University of Konstanz.

Dorothea Wagner

- Professor for Computer Sciences, University of Karlsruhe.

- Head of the German Research Council (Wissenschaftsrat), Köln.

Senior Fellows

Senior Fellows are established guest researchers from the natural sciences, humanities or social sciences who join the Zukunftskolleg for a research stay and work with our fellows. This support and inspiration are to mutual advantage: Senior Fellows profit from new impetus provided by the younger generation and vice versa.

Hans Adler

Department of German
University of Wisconsin-Madison,
USA → nominated by Gunhild Berg

Irene Albers

Peter Szondi-Institut for
Comparative Literature
Free University of Berlin, Germany
→ nominated by Johanna Kißler

Jeffrey-Alan Barrett

Department of Logic and
Philosophy of Science
University of California, USA
→ nominated by Franz Huber

Gyorgy Buzsáki

Langone Medical Center,
Neuroscience Institute
New York University, USA
→ nominated by Nathan Weisz

Alex Byrne

Department of Linguistics
and Philosophy
Massachusetts Institute of
Technology, USA
→ nominated by Julia Langkau
and Magdalena Balcerak Jackson

Yoram Carmeli

Department of Sociology
and Anthropology
University of Haifa, Israel
→ nominated by Anna Lipphardt

Brett Clementz

Department of Psychology
University of Georgia, USA
→ nominated by Johanna Kißler

Cleo Condoravdi

Natural Language Theory and
Technology Group
Stanford University, USA
→ nominated by Gerhart von
Graevenitz

Mark Dykman

Department of Physics and
Astronomy
Michigan State University, USA
→ nominated by Gianluca Rastelli

Marcia Esparza

Department of Criminal Justice
JJAY College, New York, USA
→ nominated by Nina Schneider

Christoph Fehige

Institute for Philosophy
Saarland University, Germany
→ nominated by Attila Tanyi

Bernard Frischer

Department of Informatics
Indiana University, Bloomington,
USA → nominated by Karsten
Lambers

Peter Gärdenfors

Department of Philosophy
Lund University, Sweden
→ nominated by Brendan
Balcerak Jackson

Julian D. Gale

Department of Chemistry
Curtin University, Perth, Australia
→ nominated by Denis Gebauer

Daniel R. Gamelin

Department of Chemistry
University of Washington, USA
→ nominated by Rudolf Brat-
schitsch

Dimitri Ginev

Department of Philosophy
University of Sofia, Bulgaria
→ nominated by Jeff Kochan

Leonid Glazman

Department of Physics
Yale University, USA
→ nominated by Gianluca Rastelli

Adelheid Godt

Department of Chemistry
University of Bielefeld, Germany
→ nominated by Malte Drescher

Joachim Gross

Institute of Neuroscience & Psy-
chology
University of Glasgow, UK
→ nominated by Nathan Weisz

David Gugerli

Institute for History
ETH Zurich, Switzerland
→ nominated by Gerhart von
Graevenitz

Joseph Y. Halpern

Department of Computer Science
Cornell University, USA
→ nominated by Franz Huber

Irene Heim

Department of Linguistics and
Philosophy
MIT, Cambridge, USA
→ nominated by Doris Penka

Klaus von Heusinger

Department of German Language
and Literature
University of Cologne, Germany

Sabine von Heusinger

Department of History
University of Cologne, Germany

Giora Hon

Department of Philosophy
University of Haifa, Israel
→ nominated by Samuel Schindler,
Helen Gunter, and Julia Jones

Gunnar Jeschke

Department of Chemistry and
Applied Biosciences
ETH Zurich, Switzerland
→ nominated by Malte Drescher

Viktor V. Kabanov

Department for Complex Matter
Jozef Stefan Institute, Ljubljana,
Slovenia → nominated by Jure Demsar

Paul Kiparsky

Department of Linguistics
Stanford University, USA
→ nominated by Chiara Gianollo

Arthur Kramer

Department Psychology
University of Illinois Urbana-
Champaign, USA → nominated
by Iris-Tatjana Kolassa

David Leep

Department of Mathematics
University of Kentucky, USA
→ nominated by Karim Becher

Yaron Matras

School of Languages, Linguistics
and Cultures
University of Manchester, UK
→ nominated by Eleanor Coghill

Jennifer McDowell

Department of Neuroscience,
BioImaging Research Center
University of Georgia, Athens, USA
→ nominated by Johanna Kißler

Randolf Menzel

Department of Neurobiology
Free University of Berlin, Germany
→ nominated by Andreas Thum

Gregory A. Miller

Departments of Psychology
University of Illinois Urbana-
Champaign, USA
→ nominated by Johanna Kißler,
Iris-Tatjana Kolassa, and Nathan
Weisz

Frank Moorhouse

Freelance Author
Sydney, Australia → nominated by
Gerhart von Graevenitz

Paul Mulvaney

Department of Chemistry
University of Melbourne, Australia
→ nominated by Klaus Boldt

Robert Philibert

Carver College of Medicine,
Department of Psychiatry
University of Iowa, USA
→ nominated by Helen Gunter

Wilson Poon

School of Physics and Astronomy
The University of Edinburgh, UK
→ nominated by Thomas Voigtmann

Paul Rozin

Department of Psychology
University of Pennsylvania, USA
→ nominated by Gudrun Sprösser

Alexander Schellow

Freelance Artist
Berlin, Germany

→ nominated by David Ganz and
Zsuzsanna Török

Heike Schmoll

Journalist
Frankfurter Allgemeine Zeitung
(FAZ), Germany
→ nominated by Gerhart von
Graevenitz

Valerie Shafer

The Graduate School, Speech and
Hearing Sciences
The City University of New York,
USA → nominated by Tanja Rinker

Brian Smith

School of Life Sciences
Arizona State University, USA
→ nominated by Andreas Thum

David Sobel

Department of Philosophy
Syracuse University, New York,
USA → nominated by Attila Tanyi

Patrick Speissegger

Dept. of Mathematics & Statistics
Mc Master University, Ontario,
Canada → nominated by Margaret
Thomas

Vinod Subramaniam

Rector Magnificus
Free University of Amsterdam,
Netherlands
→ nominated by Malte Drescher

Jean-Pierre Tignol

Department of Mathematics
University of Louvain, Belgium
→ nominated by Karim Becher

Patrick Tresset

Freelance Artist
London, UK → nominated by
Giovanni Galizia

Sandeep Verma

Department of Chemistry
Indian Institute of Technology
Kanpur, India
→ nominated by Jörg S. Hartig

Associated Fellows

Associated Fellows of the Zukunftscolleg are project staff, doctoral researchers and external cooperation partners of the fellows and Senior Fellows. Associated Fellowships are granted for the duration of one year upon application only. Beneficiaries of the Zukunftscolleg's funding programmes or members of the University of Konstanz whose field of work is related to that of the research units represented in the Zukunftscolleg can also apply for an Associated Fellowship.

Janina Beiser-McGrath
Dept. of Politics and Public
Administration
upon application

Julia Boll
Dept. of Literature
upon application

Daniele Brida
Dept. of Physics
upon application

María Cruz Berrocal
Dept. of History and Sociology
upon application

Amber Griffioen
Dept. of Philosophy
Mentorship

Robert Hussein
Dept. of Physics
Mentorship

Jeff Kochan
Dept. of Philosophy
upon application

Natasha Korotkova
Dept. of Linguistics
Mentorship

Sasha Kosanic
Dept. of Biology
upon application

Michael Kovermann
Dept. of Chemistry
upon application, Mentorship

Sebastian Krapp
Dept. of Mathematics
and Statistics
upon application

Ritwik Mondal
Dept. of Physics
Mentorship

Marie Laura Niedermeier
Dept. of Chemistry
Doctoral Fellowship

Doris Penka
Dept. of Linguistics
upon application

Dennis Pinggen
Dept. of Chemistry
upon application

Alejandra Quirós-Ramírez
Dept. of Computer
and Information Science
upon application

Philip Rathgeb
Dept. of Politics and Public
Administration
upon application

Mialy Harindra Razanajatovo
Dept. of Biology
Mentorship

Max Valentin Reinwald
Dept. of Politics and Public
Administration
Doctoral Fellowship

Andreas Scherer
Dept. of Chemistry
Doctoral Fellowship

Michael Smith
Dept. of Biology
Mentorship

Maurizio Strazzeri
Dept. of Economics
Doctoral Fellowship

Katharina Zahner
Dept. of Linguistics
upon application

Maria Zhukova
Dept. of Literature
upon application, Mentorship

Katarina Zigova
Dept. of Economics
Mentorship

ZUKOnnect Fellows

In 2019, the Zukunftscolleg introduced ZUKOnnect Fellowships to support early career researchers from Africa, Asia and Latin America. The new fellowships will strengthen the cultural diversity at the Zukunftscolleg and stimulate the intellectual and integrative discourse amongst its fellows. By broadening its academic horizons, the Zukunftscolleg aims to promote greater intercontinental dialogue in research.

Hamadjam Abboubakar
Dept. of Mathematics and Statistics
ZuKonnnect Fellowship

Leila Abdala
Dept. of Literature
ZuKonnnect Fellowship

Denisha Gounden
Dept. of Chemistry
Zukonnnect Fellowship

Patrícia Nabuco Martuscelli
Dept. Politics and Public
Administration
ZuKonnnect Fellowship

Sana Shams
Dept. of Linguistics
ZuKonnnect Fellowship

Abena Yalley
Dept. of History and Sociology
ZuKonnnect Fellowship

Alumni

The Zukunftskolleg's purpose is to provide early career researchers with everything they need to build an academic career. The careers of former members show that we are on the right track. (This list includes fellows that joined the Zentrum für den wissenschaftlichen Nachwuchs [ZWN] and built the first community of the Zukunftskolleg.)

Christof Aegerter (2006–2009)
Lecturer and Group Leader at the Physics Institute
University of Zürich, Switzerland

Unai Atxitia Macizo (2014–2016)
Junior Research Group Leader, Department of Physics
FU Berlin, Germany

Tuhin Shuvra Basu (2015–2019)
JSPS Postdoctoral Fellow,
NIMS, Tsukuba, Japan

Brendan Balcerak Jackson (2014–2015)
Assistant Professor at the Dept. of Philosophy
University of Miami, USA

Magdalena Balcerak Jackson (2013–2015)
Assistant Professor at the Dept. of Philosophy
University of Miami, USA

Michael W. Bauer (2005–2009)
Professor at the Department of Public Administration
University of Administrative Sciences, Speyer, Germany

Karim J. Becher (2008–2013)
Professor at the Dept. of Mathematics and Computer Sciences
University of Antwerp, Belgium

Janina Beiser-McGrath (2016–2019)
Lecturer Position in Politics and International Relations (Quantitative Methods) at the Centre for International Security at Royal Holloway
University of London, UK

Gunhild Berg (2009–2013)
Researcher and project leader in the [D-3] Project
Martin-Luther University Halle-Wittenberg, Germany

Julien Bernard (2013–2015)
Maître de conférences at the Dept. of Philosophy
University of Aix-Marseille, France

Francesca Biagioli (2014–2017)
Researcher at the Dept. of Philosophy
University of Turin, Italy

Steffen Bogen (2006–2010)
Lecturer for the Science of Art at the Department of Literature
University of Konstanz, Germany

Rudolf Bratschitsch (2007–2010)
Professor at the Institute of Physics
University of Münster, Germany

Martin Bruder (2010–2013)
Head of Dept.
German Institute for Development Evaluation (Deval), Bonn, Germany

Joanna Chojnicka (2013–2015)
Research Fellow at the Faculty of Linguistics and Literary Studies
University of Bremen, Germany

Monika Class (2014–2016)
Junior Professor at the Dept. of English and Linguistics
University of Mainz, Germany

Eleanor Coghill (2010–2016)
Professor at the Dept. of Linguistics and Philology
University of Uppsala, Sweden

Maité Crespo Garcia (2014–2016)
Newton International Fellow,
University of Cambridge, UK

Sarang Dalal (2011–2015)
Professor at the Center of Functionally Integrative Neuroscience
Aarhus University, Denmark

Martin Dege (2014–2016)
Assistant Professor at the Dept. of Psychology
American University of Paris, France

Jure Demsar (2007–2012)
Professor at the Department of Physics
Johannes Gutenberg University, Mainz, Germany

Malte Drescher (2008–2013)
Vice Rector for Research and Academic Staff Development

Professor for Physical Chemistry at the Department of Chemistry
University of Konstanz, Germany

Martin Elff (2013–2015)
Professor and Chair of the Dept. of Political Sociology
Zeppelin University, Friedrichshafen, Germany

Arthur Erbe (2006–2009)
Head of Department “Skalierungsphänomene”
Helmholtz-Zentrum Dresden-Rossendorf, Germany

Thomas E. Exner (2007–2012)
Chief Scientific Officer (CSO) at Douglas Connect
Basel, Switzerland

Katherine Fama (2015–2016)
Assistant Professor at the School of English, Drama & Film
University College, Dublin, Ireland

Wolfgang Freitag (2006–2011)
Professor for Epistemology and the Theory of Science
University of Freiburg, Germany

David Ganz (2007–2012)
Professor at the Department of Art History
University of Zürich, Switzerland

Denis Gebauer (2014–2019)
Professor at the Institute of Inorganic Chemistry
Leibniz University Hannover, Germany

Chiara Gianollo (2008–2011)
Associate Professor at the Dept. of Classical Philology and Italian Studies
University of Bologna, Italy

Thomas Gisler (2004–2009)
Senior Scientist Spectroscopy
Metrohm AG, Herisau, Switzerland

James Griffiths (2016–2018)
Professor in English Linguistics at the Department of Modern Languages
University of Tübingen, Germany

Helen Gunter (2008–2014)
Project Manager at Edinburgh Genomics
University of Edinburgh, UK

Simon Hanslmayr (2010–2013)
Senior Lecturer at the School of Psychology
University of Birmingham, UK

Jörg S. Hartig (2007–2011)
Professor at the Department of Chemistry
University of Konstanz, Germany

Tamir Hassan (2013–2014)
Automated Publishing Researcher
Hewlett-Packard Laboratories, Wien, Austria

Barbara Hausmair (2014–2016)
University Assistant
University of Innsbruck, Austria

Anne Hauswald (2008–2012)
Senior Scientist at the Center of Cognitive Neuroscience (CCNS)
University of Salzburg, Austria

Corinna Hermann (2002–2008)
Department of Immunology|Global Preclinical R&D
Baxter Innovations, Wien, Austria

Franz Huber (2008–2012)
Associate Professor at
University of Toronto Toronto, Canada

Wolf Hütteroth (2014–2017)
Group leader at the Department of Genetics
University of Leipzig, Germany

Laura Iapichino (2013–2015)
Assistant Professor at the Dept. of Mathematics and Computer Science
Eindhoven University of Technology, Netherlands

Zhongbao Jian (2013–2015)
Professor at the Changchun Institute of Applied Chemistry
Chinese Academy Of Sciences, China

Georg Jochum (2003–2008)
Chair for Public Law, Tax and European Law, and Regulatory Law
Zeppelin University, Friedrichshafen, Germany

Julia Jones (2008–2013)
Lecturer/Assistant Professor (Ad Astra Fellow)
University College Dublin, Ireland

Andreas Karrenbauer (2010–2012)
Senior Researcher at the Dept. of Informatics
Max Planck Institute, Saarbrücken, Germany

Johanna Maria Kißler (2003–2010)
Professor at the Department of Psychology and Physical Education
University of Bielefeld, Germany

Matthias Kläui (2006–2010)
Professor at the Institute of Physics
Johannes Gutenberg University, Mainz, Germany

Iris-Tatjana Kolassa (2006–2010)
Professor at the Institute of Psychology and Education
University of Ulm, Germany

Albert Kümmel-Schnur (2006–2011)
Lecturer at the Department of Literature
University of Konstanz, Germany

Andrea Lailach-Hennrich (2013-2018)
Lecturer in the Department of Politics and Public Administration
University of Konstanz, Germany

Karsten Lambers (2008-2013)
Associate Professor at the Dept. of Archaeology
University of Leiden, Netherlands

Benjamin Lambert (2013-2017)
Postdoctoral Researcher at the Department of Mathematics
TU Darmstadt, Germany

Julia Langkau (2013-2016)
Lecturer at the CODE University of Applied Sciences Berlin, Germany

Elliott Lash (2014-2016)
Research Fellow at the Dept. of Linguistics
Maynooth University, Ireland

Daniel Legler (2004-2009)
Professor and Group Leader at the Biotechnology Institute Thurgau
University of Konstanz, Germany

Philipp Leifeld (2013-2015)
Professor at the Dept. of Government
University of Essex, UK

Bernard Lepetit (2013-2018)
Researcher in the Department of Biology
University of Konstanz, Germany

Shujun Li (2008-2011)
Professor of Cyber Security at the School of Computing and Interdisciplinary Research Centre
University of Kent, UK

Anna Lipphart (2008 - 2010)
Professor at the Institute of Cultural Anthropology and Folkloristic
Albert-Ludwigs-University of Freiburg, Germany

Kirsten Mahlke (2002-2008)
Professor at the Department of Literature
University of Konstanz, Germany

Marilena Manea (2008-2013)
Chemist at Chromsystems Instruments & Chemicals GmbH
München, Germany

Matteo Morganti (2008-2010)
Associate Professor at the Dept. of Philosophy
University of Rome, Italy

Frank Neuner (2007-2008)
Professor at the Department of Clinical Psychology and Psychotherapy
University of Bielefeld, Germany

Peter Öhlschläger (2007-2011)
Professor at the Department of Chemistry and Biotechnology
University of Applied Sciences, Aachen, Germany

Michael Teague O'Mara (2013 - 2017)
Assistant Professor at the Department of Biological Sciences
Southeastern Louisiana University, USA

Michael Pester (2014-2017)
Professor at the Institute of Microorganisms
TU Braunschweig
Head of the Dept. of Microorganisms
Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures, Germany

Niels P. Petersson (2003-2008)
Professor at the Faculty of Development and Society
Sheffield Hallam University, UK

Torsten Pietsch (2013-2018)
Project Leader in Research & Development
ZEISS Group, Germany

Dennis Pinggen (2016-2018)
Dept. of Chemistry
University of Konstanz, Germany

Daniel Plaumann (2013-2016)
Professor at the Faculty of Mathematics
University of Dortmund, Germany

Anton Plech (2002-2008)
Group Leader and Deputy Department Leader at the Institute for Synchrotron Radiation (ISS)
KIT Institute of Technology, Karlsruhe, Germany

Maria Daniela Poli (2015-2017)
Associate Lawyer at Arendt & Medernach, Luxembourg

Beatriz Puente Ballesteros (2013-2015)
Assistant Professor at the Dept. of History
University of Macau, China

Sven Reichardt (2007-2011)
Professor for Contemporary History at the Department of History and Sociology
University of Konstanz, Germany

Karsten Rinke (2008-2013)
Head of the Dept. of Lake Research
Helmholtz-Centre for Environmental Research, Magedeburg, Germany

Tanja Rinker (2009-2017)
Professor for "German as a Foreign Language/Didactics of German as a Second Language"
Catholic University of Eichstätt-Ingolstadt, Germany

Antonio Rotolo (2014-2016)
Founder and CEO
Ludwig.guru

Paraskevi Salamaliki (2013-2015)
Research Fellow at the Dept. of Economics
University of Patras, Greece

Samuel Schindler (2009-2011)
Associate Professor at the Centre for Science Studies
Aarhus University, Netherlands

Nina Schneider (2013-2015)
Research group leader
Käte Hamburger Kolleg | Centre for Global Cooperation Research, Duisburg, Germany

Matthias Schöning (2003-2008)
Lecturer at the Department of Literature
University of Konstanz, Germany

Sebastian Schutte (2014-2018)
Senior Researcher at the Dept. Conditions of Violence and Peace
Peace Research Institute Oslo, Norway

Denis Seletskiy (2013-2017)
Assistant Professor at the Dept. of Engineering Physics
Polytechnique Montréal, Canada

Ilja Serzants (2013-2015)
Professor in Slavic Linguistics with a focus on historical linguistics
Christian-Albrechts-University of Kiel, Germany

Minmin Shen (2013-2017)
Applied Scientist
Amazon.com Inc., USA

Ulrich Sieberer (2011-2016)
Professor at the Dept. of Politics
University of Bamberg, Germany

Aline Steinbrecher (2013-2015)
Lecturer, Histroisches Seminar,
University of Zurich, Switzerland

Margarita Stolarova (2009-2015)
Group Leader for Childhood Education
German Youth Institute, München, Germany

Daniel Summerer (2011-2015)
Professor at the Dept. of Chemical Biology
University of Dortmund, Germany

Edina Szöcsik (2013-2015)
Senior Research Fellow (SNSF Ambizione-Grantee) at the Department of Political Science
University of Basel, Switzerland

Jolene Tan (2018-2019)
User Experience Researcher
AirHelp, Berlin, Germany

Attila Tanyi (2010-2013)
Associate professor at the Dept. of Philosophy
University of Tromsø, Norway

Margaret Thomas (2011-2018)
Assistant Professor at the Dept. of Mathematics
Purdue University, USA

Andreas S. Thum (2011-2017)
Professor for Genetics at the Dept. of Biology
University of Leipzig, Germany

Alexander Titz (2010-2013)
Group Leader at the Dept. of Chemical Biology
Helmholtz Institute for Pharmaceutical Research, Saarbrücken, Germany

Borbála Zsuzsanna Möller-Török (2009-2017)
Lise Meitner Position at the Faculty

of Historical and Cultural Studies
University of Vienna, Austria

Tilman Triphan (2016-2018)
Researcher at the Dept. of Genetics
University of Leipzig, Germany

Grey Violet (2015-2017)

Thomas Voigtmann (2009-2014)
Professor at the Institute of Theoretical Physics
University of Düsseldorf, Germany

Sonja von Aulock (2007-2011)
Editor-in-Chief at ALTEX – Alternatives to Animal Experimentation
Küsnacht, Switzerland

Nadir Weber (2016-2018)
Head of the SNF Ambizione Project "Falken in der Höfischen Gesellschaft" at the Historical Institute
University of Bern, Switzerland

Nils B. Weidmann (2013-2015)
Professor at the Dept. of Politics and Public Administration
University of Konstanz, Germany

Nathan Weisz (2008-2012)
Professor at the Centre for Cognitive Neuroscience
University of Salzburg, Austria

Leila Whitley (2016-2018)
Lecturer in Critical Gender Studies
University of California, USA

Filip Wojciechowski (2013-2014)
Synthetic Organic Chemist at Gl Chemtec International Ltd.
Oakville, Canada

Dominik Wöll (2008-2014)
Professor in Physical Chemistry (Condensed matter spectroscopy)
RWTH University Aachen, Germany

Network Memberships

The Zukunftskolleg is a member of two international networks: NetIAS (Network of European Institutes for Advanced Study) and UBIAS (University-Based Institutes for Advanced Study). These memberships create links to partners around Europe and throughout the world – they foster networking between similar institutes in the search for new ideas and best practices. For Zukunftskolleg fellows, this facilitates direct contact to renowned institutes worldwide and encourages collaboration with international research partners.

NetIAS

Network of European Institutes for Advanced Study

NetIAS brings together 25 Institutes for Advanced Study across Europe. It was created in 2004 to stimulate a dialogue on IAS practices and possible forms of cooperation. NetIAS members share the objective of creating international and multidisciplinary learning communities. This openness and the freedom the fellows enjoy for their researches serve to promote scientific and intellectual exchanges. IAS tend to break from the intellectual routines, thus fostering the emergence of new perspectives, approaches and paradigms. While sharing a common vision concerning the freedom of research, and representing an alternative to the national institutions of higher education and research, the IAS offer a considerable diversity in terms of fellowship conditions. Furthermore, their scientific policies are characterized by different thematic or geographical orientations, a diverse openness to natural and hard sciences, or a special commitment to promoting early career researchers.

Incubated within NetIAS in 2019 and supported by eleven Institutes for Advanced Study including the Zukunftskolleg, the novel Constructive Advanced Thinking (CAT) initiative aims to foster networks of excellent early-career researchers dedicated to devise new ideas to understand and to tackle current or emerging societal challenges. CAT provides travel funds to teams of early career researchers (three to five persons, possibly including a stakeholder) to advance their constructive thinking and stimulate discussion in the best research environments Europe has to offer.

In 2019, five CAT groups were selected of which two will visit the Zukunftskolleg during their 3-year projects:

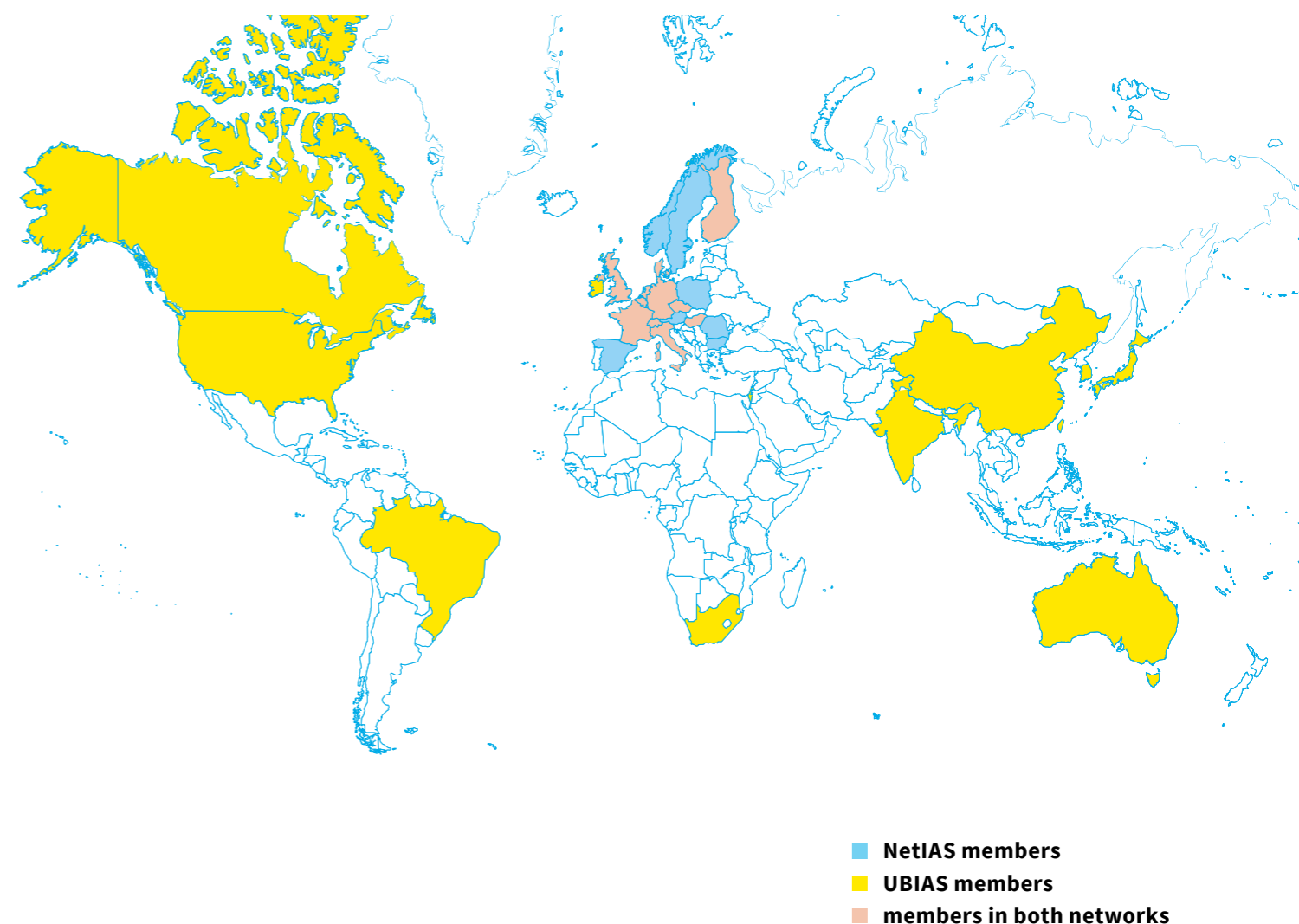
→ “Unravelling Existential Suffering and its Relationship with Depression in the Elderly”: Well-being in Rest Homes, led by Jessie DEZUTTER, KU Leuven. The team will also be hosted at NIAS (Amsterdam), Zukunftskolleg (Konstanz), MAK'IT (Montpellier) and IEA Paris (Paris).

→ “A psycho-legal approach to international criminal justice. Improving decision-making in the Office of the Prosecutor of the International Criminal Court”, edited by Anna SAGANA, University of Maastricht. The team will be hosted at ZIF (Bielefeld), Wissenschaftskolleg (Berlin), CEU-IAS (Budapest) and Zukunftskolleg (Konstanz).

UBIAS

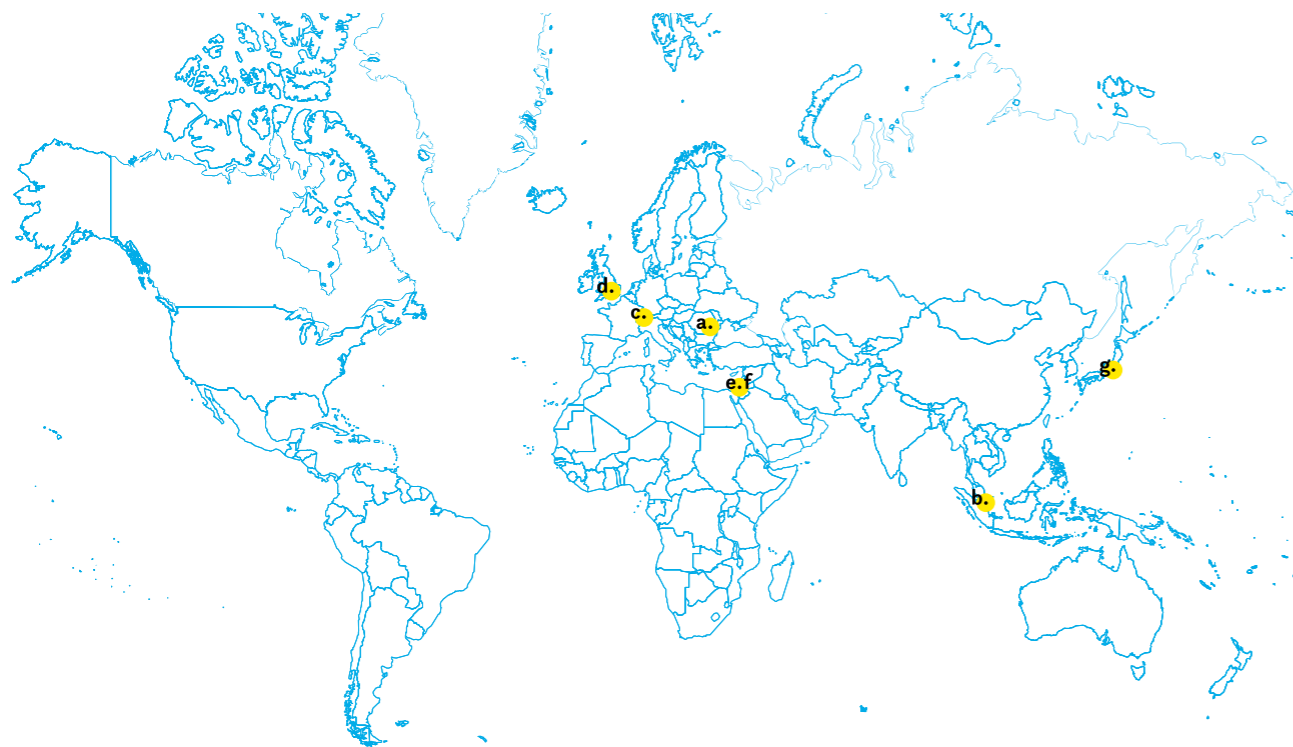
University-Based Institutes for Advanced Study

UBIAS is a network of 44 university-based Institutes for Advanced Study worldwide. Initiated in 2010, the network was established to enable structured forms of exchange in this growing segment, including biennial conferences and joint programmes between partner institutes. Unlike traditional Institutes for Advanced Study, UBIAS institutes are associated with or embedded within a university, and actively contribute to the academic culture and the scientific achievements of their home university. UBIAS is committed to equality, inclusivity and diversity. In 2019, the Zukunftskolleg took up the UBIAS' Topic of the Year 'Migration' in its weekly Jour fixe and organized an art exhibition with other research institutes at the University of Konstanz.



Cooperation Partners

The Zukunftskolleg works closely with various institutions in Germany and around the world. This collaboration not only advances scientific dialogue at academic level but also enhances knowledge communication with the public. Exchange on organizational matters helps to further develop the concept of the Zukunftskolleg on a continuous basis. Cooperation with major academic institutions as hosts for Zukunftskolleg fellows fosters networking and exchange of experience, stimulating collaborative projects and international research partnerships in the process.



NATIONAL COOPERATION PARTNERS

Akademie Schloss Solitude (Stuttgart)

With its international programmes, the Akademie Schloss Solitude supports young and particularly gifted artists. Apart from those, also scientists of such disciplines as Music or Arts are welcome to apply for scholarships. The Schloss Solitude is not only a place for artistic and scientific exchange, but also a possibility for young scientists and artists to retire from their daily life. This way Zukunftskolleg Fellows are given the opportunity to attend a retreat from one up to three months' time.

Baden-Württemberg-Stiftung (Stuttgart)

The Eliteprogramm für Postdoktorandinnen und Postdoktoranden addresses outstanding young researchers. With this programme the Baden-Württemberg Stiftung supports annually around 20 post-doctoral candidates financially, who aim to pursue their research at a university within the federal state of Baden-Württemberg and who have made it their home base. A number of Zukunftskolleg Fellows have already received the institution's support.

INTERNATIONAL COOPERATION PARTNERS

a. Alexandru Ioan Cuza University of Iași (Romania)

UAIC is the oldest higher education institution in Romania, being ranked in top 3 in National rankings of universities. With over 752 teachers, 23.000 students (among them 850 PhD students), 319 researchers (part-time and full-time researchers including postdoctoral researchers), the university enjoys high prestige at national and international level. UAIC is a member of some of the most important university networks and associations: the Coimbra Group, EUA – European University Association, Utrecht Network, International Association of Universities, University Agency of Francophony and the Balkan University Network. UAIC also has two Interdisciplinary Research Departments: one in the field of science and in social science and humanities.

b. Centre for Liberal Arts and Social Sciences (Singapore)

The CLASS is a major research centre of the College of Humanities, Arts and Social Sciences at the Nanyang Technological University (Singapore). Established in 2006, CLASS facilitates, coordinates, and encourages interdisciplinary research at Nanyang Technological University, and acts as a platform for interaction among local and international scholars from various disciplines. Some of the activities organised at the Centre include presentations for working papers, seminars, CLASS Distinguished Lectures, multi-disciplinary workshops and conferences.

c. Collegium Helveticum (Switzerland)

The Collegium Helveticum (Zurich, Switzerland) is a think tank and laboratory for transdisciplinary research. It aims to provide a meeting place and forum for dialogue between the humanities, social sciences, physical sciences, engineering, medical science and the arts. It is sponsored by the University of Zurich, ETH Zurich and the Zurich University of the Arts. Alongside the transdisciplinary research of its fellows and members, the Collegium organises international events on fundamental issues in science and the arts in general, as well as on the current research

Hector Foundation (Weinheim)

The foundation supports medical research, provides assistance to social programmes - especially in regard to disabled persons - and funds artistic and cultural projects. A further focus is the support of gifted young people, especially in the natural sciences and mathematics. In this context, the Hector Foundation II finances the Hector Pioneer Fellowship of the Zukunftskolleg.

Hegau-Bodensee-Seminar (Konstanz)

The Hegau-Bodensee Seminar offers interested high school pupils a possibility to take advantage of further education beyond school contents. Supported by lectures, workshops and excursions the pupils tackle chosen topics in collaborating working groups. "University Day" is a fixed part of the Hegau-Bodensee Seminar, which provides the chance for pupils to do research directly with scientists and experience recent research done at universities at eye level. Since 2010, Zukunftskolleg Fellows regularly hold lectures and seminars in the framework of the University Day. In 2020, the planned topic was "Collective Behaviour" which had to be postponed due to the Corona pandemic.

Lindau Nobel Laureate Meetings (Lindau)

The annual Lindau Nobel Laureate Meeting is a worldwide recognized forum for the exchange between generations and scientists. Young scientists are chosen from a worldwide network of academic partners in order to participate in panel discussions, seminars and other forms of communication connected to the event. This way the aspiring generation receives a unique opportunity to meet and network with Nobel laureates for Physics, Chemistry, Medicine and Economics. The Zukunftskolleg is a partner of this meeting and fellows are regularly nominated to join the event. In 2019, Takayuki Kurihara (Research Fellow/ Dept. of Physics) was invited to join the Lindau Nobel Laureates Meeting.

topic (2016–2020) of ‘digital societies’ in the role as an institute for advanced study. Zukunftskolleg and the Collegium organise research workshops together (e.g. “World Government or Else?” in 2018) and have published a prize question (“Disrupted Order?”) for their fellows in 2019. The collaborative events seek to promote interdisciplinary thinking and exchange across nation borders.

d. Darwin College Cambridge (United Kingdom)

Darwin College is a constituent college of the University of Cambridge (UK) and has been founded in 1964. It is a supportive, interdisciplinary community in which graduate students, researchers and fellows meet together, so as to enrich and enlarge their scholarship and personal experiences. The colleges are one of Cambridge’s strengths, academic communities that cross the disciplines. Darwin College has 65 fellows who hold faculty or research positions in the university and associated institutes, and about 650 students who come from the UK and some 70 other countries. Darwin College fosters an informal and egalitarian atmosphere for this multi-disciplinary, international community. Students and fellows meet and talk at academic get-togethers and seminars, over meals and at social and sporting events and in running the annual Darwin College lecture series (a major public event with luminary speakers every week of the Lent Term). Unlike most other colleagues our students and fellows are not segregated and students are members of many of the college’s governing committees.

e. Israel Institute for Advanced Study (Israel)

Israel Institute for Advanced Studies (IIAS) of Jerusalem is a national institution devoted to academic research. Located at The Hebrew University of Jerusalem, the IIAS is a self-governing body, both in its administrative function as well as its academic pursuit. The primary function of the Institute is to encourage and support collaborative research. Along with collaborative research groups, the institute annually hosts six advanced schools as well as many conferences. The Institute is similar in concept to several existing Institutes of Advanced Study, yet also unique in its sponsoring unrestricted academic research and hosting collaborative teams throughout the more than forty years since its establishment.

f. Martin Buber Society of Fellows in the Humanities (Israel)

The Martin Buber Society of Fellows in the Humanities and Social Sciences at the Hebrew University of Jerusalem (Israel) aims to offer young and outstanding scientists of Humanities and Social Science a creative and vivid research landscape. Its fellowship programme fosters the German-Israeli dialogue within the Society and beyond, and with the vital academic and intellectual connections that the fellows have created in the encounters the programme facilitates. Just like the Zukunftskolleg the Martin Buber Society is interdisciplinary oriented and supports excellent research. Therefore, collaboration and exchange between the two institutions bears high potential and proved to be fruitful. A “Memorandum of Understanding – To Establish a Programm of Scholarly Exchange and Cooperation” has been signed in 2011 and renewed in 2015. Moreover, workshops for larger groups are being held in Jerusalem and Konstanz. In 2018, a joint symposium entitled ‘Un/certainty’ has taken its first round in Konstanz in June 2018, its second part in November 2018 in Jerusalem. The contributions and resultant discussions of this symposium became part of a common Blog on Un/certainty.

g. Waseda Institute for Advanced Study (Japan)

The Waseda Institute for Advanced Study (WIAS) in Tokyo (Japan) was established in 2006 as a research institute to provide young researchers with opportunities to dedicate themselves to their research. WIAS offers an independent research environment for young researchers and fosters them to be next-generation researchers. Currently, about 40 researchers are working in the fields of natural sciences, humanities, social sciences and interdisciplinary areas at WIAS. They are engaged in leading research activities that fully demonstrate their flexible thinking and abilities. WIAS also accepts overseas distinguished researchers who stay at Waseda for a short-term to engage in cooperative research with Waseda faculty members or WIAS researchers. In January 2020, WIAS and Zukunftskolleg signed a Letter of Commitment to encourage and ease reciprocal short research stays for our fellows.

Legal Notice

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The Zukunftskolleg is an Institute for Advanced Study at the University of Konstanz, responsible for promoting early independence for early career researchers. With its 2-year and 5-year Fellowships as well as an extensive support network, scholars in the humanities, social and natural sciences come to Konstanz from across the world to perform first-class research.

The Zukunftskolleg is one of three lighthouse projects within the university's Excellence Strategy – together with the e-science strategy and the Forum Konstanz.

The University of Konstanz has received funding for its Zukunftskonzept (institutional strategy to promote top-level research in the framework of the German Excellence Initiative) since 2007. The new concept *creative.together* builds on the previous university strategy and further develops its *culture of creativity* in a systematic way.

